ARCHAEOLOGY AT FORT CHAMBLY

Pierre Beaudet
and Céline Cloutier

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Translated from original French text

Studies in Archaeology, Architecture and History
National Historic Parks and Sites
Parks Service
Environment Canada

90-03312/

© Minister of Supply and Services Canada 1989.

Available in Canada through authorized bookstore agents and other bookstores, or by mail from: Canadian Government Publishing Centre, Supply and Services Canada, Hull, Québec, Canada K1A 0S9

Published under the authority of the
Minister of the Environment
Ottawa, 1989

Cover design and layout: Louis D. Richard
Editing: Sheila Ascroft
Translation: Department of the Secretary of State

Parks publishes the results of its research in archaeology, architecture and history. A list of publications is available from Research Publications, Canadian Parks Service, 1600 Liverpool Court, Ottawa, Ontario K1A 0H3

Cover illustrations: Interior and exterior views of Fort Chambly after restoration, 1980-1981. (Photos: Parks Service, Environment Canada)

Canadian Cataloguing in Publication Data

Beaudet, Pierre R.

Archaeology at Fort Chambly

(Studies in archaeology, architecture and history, ISSN 0821-1027)
Issued also in French under title: Les témoins archéologiques du fort Chambly.
Includes bibliographical references.
ISBN 0-660-13281-8
DSS cat. no. R61-2/9-44E

1. Fort Chambly (Chambly, Quebec). 2. Chambly (Quebec) — Antiquities. 3. Excavation (Archaeology) — Quebec (Province) — Chambly. 4. Fort Chambly National Historic Park (Quebec). I. Cloutier, Céline, 1952- . II. Canadian Parks Serivce. National Historic Parks and Sites. III. Title. IV. Series.

F1054.C42B5213 1989 971.4'37 C89-097142-0
FC2914.C42B5213 1989

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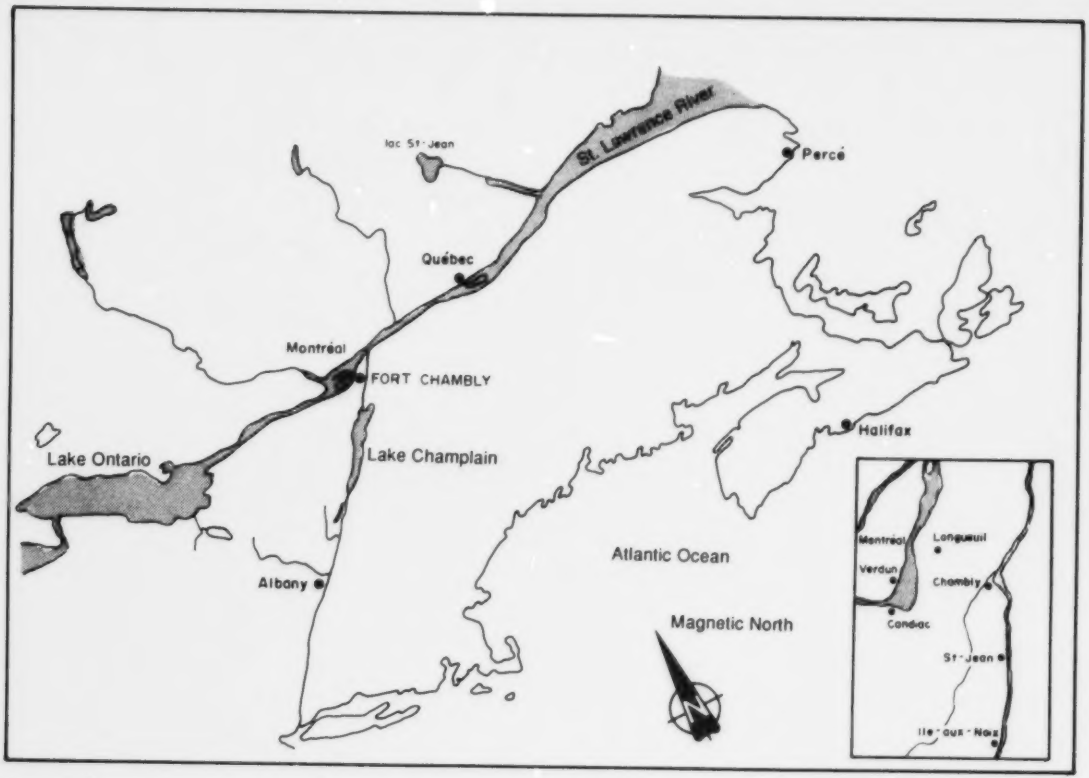
Submitted for publication in 1985 by Pierre Beaudet and Céline Cloutier, Archaeological Research, Environment Canada, Parks Service, Québec Regional Office.

INTRODUCTION

The purpose of this study is to present the results of archaeological research performed by Canadian Parks Service on Fort Chambly. To this end, we went through the various preliminary reports written over the years and extracted the essential technical data. As much as possible, we also took into consideration all other available documentary sources so that we could present a more global picture of the fort's history. Accordingly, the study relates the site's physical evolution to the fort's changing role, a role which was itself shaped by the forces of historical circumstance. The results of research on the material culture of the French regime are also reported. The links we have been able to establish between the archaeological data and information from other sources shed new light on certain aspects of living conditions in this period.

The following chapters deal principally with the site's early periods of occupation, the architectural and functional development of the stone fort, and the results of research on material culture. To help situate the reader, the first part of the study includes a presentation of the site, an historic overview, and a chapter on the circumstances, nature and role of the archaeological work carried out at the fort.



1 Map giving Fort Chambly's location.

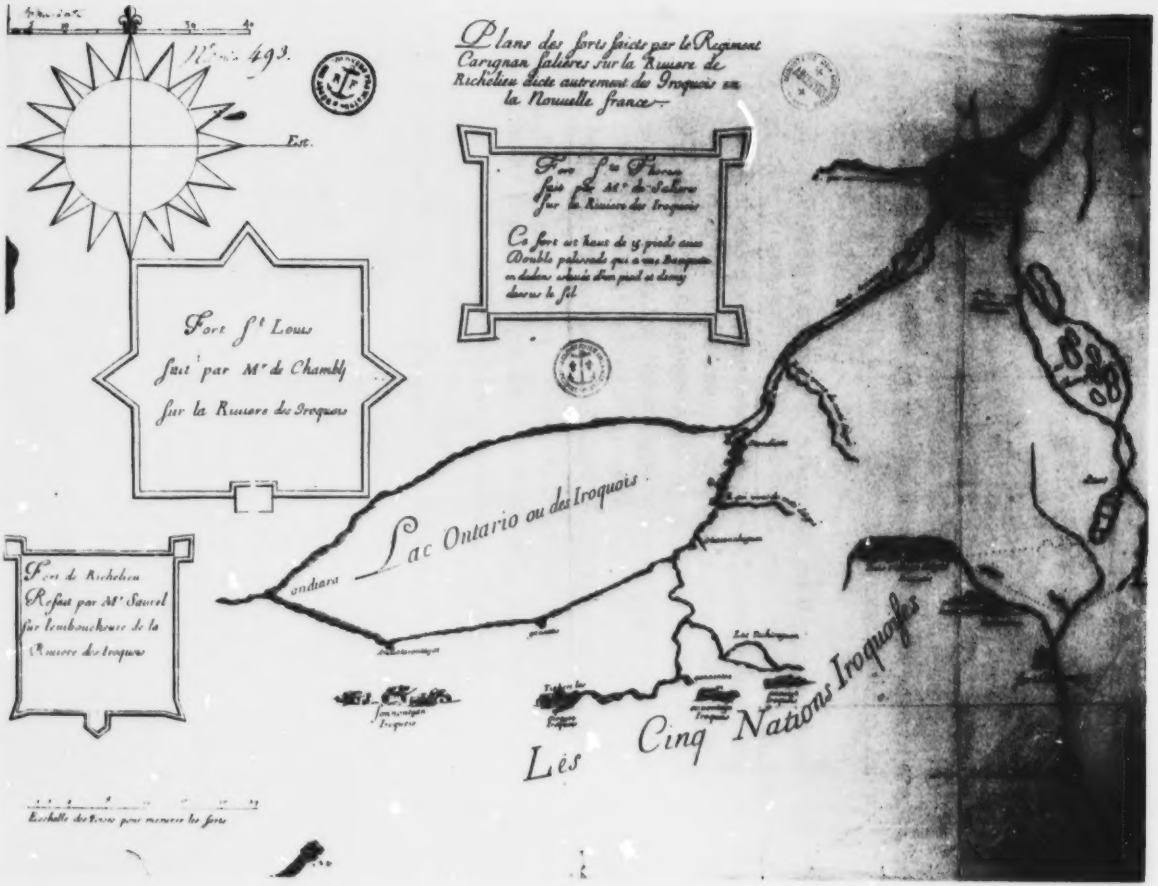
THE SITE

Fort Chambly is situated on the left bank of the Richelieu River, about 30 kilometres southeast of the Montréal urban community (Fig. 1). The site includes the remains of three forts built one after the other at the same place. The first two forts were made with wooden palisades, while the third was of stone.

The French-Iroquois Wars that marked the second half of the 17th century and the subsequent intercolonial wars justified building these fortifications, which themselves attest to a sustained military presence in the Richelieu valley. Since the Richelieu River was the favourite passage of the Iroquois living to the south and, later, the ideal invasion route for the English and the Americans, it was in the centre of the conflicts that punctuated our history for more than two centuries. Although, between 1665 and 1850, the number of soldiers occupying Chambly varied depending on the circumstances, they were nevertheless nearly always present.

American Indians were familiar with the Chambly site well before the first French fort was built there. Several artifacts found on the site are evidence of this (Fig. 17). Although these objects have not been studied systematically, their presence is proof of human occupation both before the arrival of Europeans and during the period of contact between the native peoples and the newcomers. According to prehistorians, the place was used in fall and spring for hunting and fishing, and served as a temporary campsite for long trips (Piédalue 1979: 22). Some of the objects discovered are believed to date from the Middle Woodland period, or about 1000 B.C., while other artifacts, especially stone pipes, were probably brought there by Indians travelling with Europeans. However, it has not yet been proven that the site was occupied continuously from the Woodland period to the contact period.

At the other end of the chronological scale there is the final withdrawal of soldiers in about 1870 and the beginning of the fort being operated as an historic monument, with all the maintenance, repairs, restoration and development that this new role has entailed from 1882 to the present.


Plans des forts faicts par le Regiment Carignan Salières Sur la Riuiere de Richelieu dicte autrement des Iroquois en la Nouuelle france
Est.
Fort St Louis
fait par Mr de Chambly
sur la Riuiere des Iroquois
Fort de Richelieu
Refait par Mr Saurel
sur l'embouchure de la
Riuiere des Iroquois
Lac Ontario ou des Iroquois
Les Cinq Nations Iroquoises

2 Three of the five forts constructed by the Carignan-Salières regiment on the Richelieu River.

HISTORIC OVERVIEW

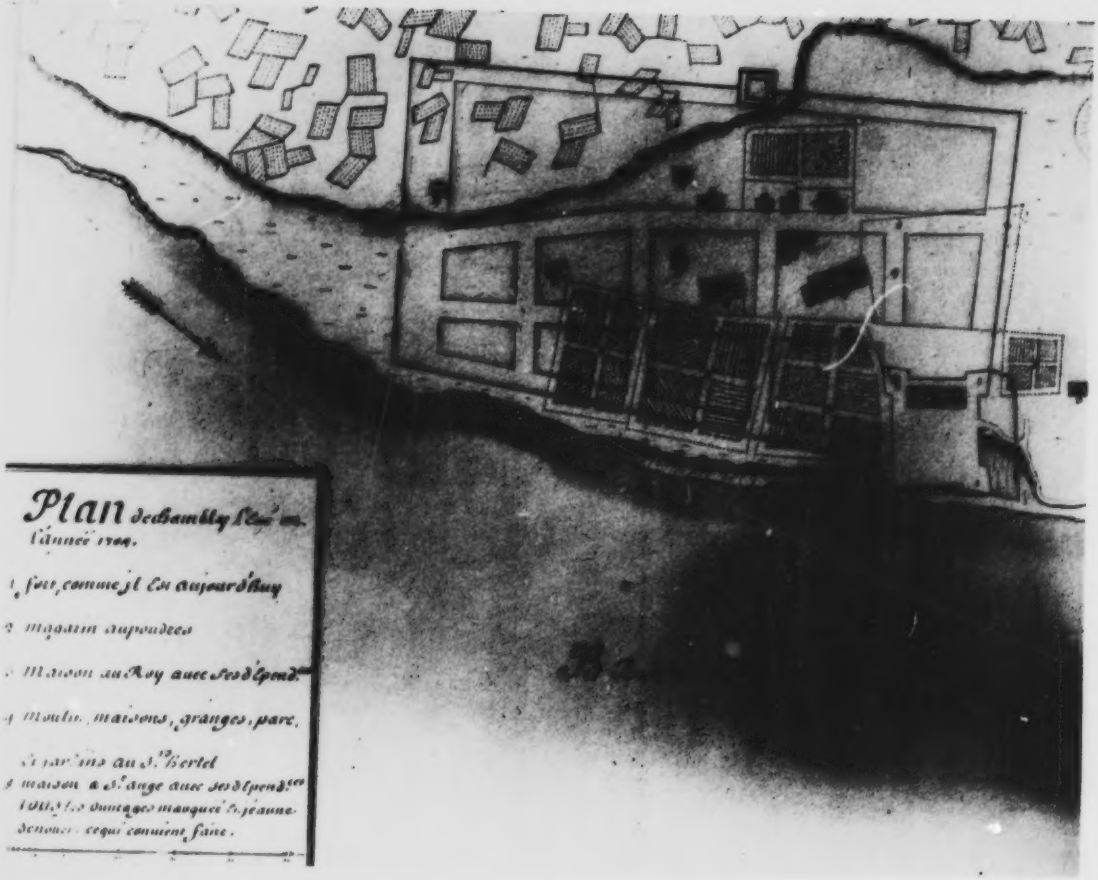
The French-Iroquois Wars resulted from the destabilization of trade. This instability was, in turn, caused by the arrival of Europeans as by well as by their involvement in the conflicts dividing the various Indian tribes. The Iroquois, cut off from the furs that had become essential for commerce, were struggling for survival, while the Europeans supported other native tribes (Hurons, Algonquins and Montagnais) in an attempt to wrest a larger share of the fur trade away from the Iroquois.

In 1663, the Iroquois began to exert enough pressure on New France and its allies so that France was prompted to dispatch four companies of the Carignan-Salières regiment to the Richelieu Valley. These companies had orders to construct a series of fortified posts capable of supporting an expedition against the Mohawks (one of the Iroquois tribes) living to the south of Lake Ontario. Jacques de Chambly was the officer who ordered the construction of the first fort, Saint-Louis (later known as Fort Chambly). It was the second link in a chain of five fortified works set up along the Richelieu (Fig. 2). This fort

> *formed a square, 144 feet on each side. Three of the sides had a redan, while the fourth side contained a door protected by an enclosed entryway [...] Inside the enclosure was "a house and, all around it, huts for the soldiers"* (Gélinas 1983: 11).

Following the construction of the Richelieu River forts, campaigns carried out by French colonial officials, Tracy and Courcelles, caused the Iroquois to fear the French and a peace settlement was reached in 1667. When hostilities broke out again 20 years later, Fort Saint-Louis was in very poor condition. The fact that the English were entering into this conflict made the Richelieu's fortifications seemed even more vulnerable (Gélinas 1983: 23). In 1693, the French colonial authorities finally obtained funds from the Court to refortify Chambly.

> *Soon afterward work began on the reconstruction of the stockade, which, according to Frontenac, was greatly dilapidated. "Forts Chambly and Sorel were (rebuilt) using new stakes, the old ones being rotten and in several places they were far enough apart to*


Plan de Chambly
l'année 1734.
1. fort, comme il est aujourd'huy
2. magasin aux poudres
3. Maison du Roy avec ses dépendances
4. Moulin, maisons, granges, parc,
jardins du Sr. Bertel
5. maison à St. Ange avec ses dépendances

3 Chambly and its second fort, built by Levasseur de Neré in ca. 1720.

allow entry." The repairs to the stockade offered a opportunity to make some improvements to the buildings inside, in particular, the "fort house" (Gélinas 1983: 23).

In 1697, the War of the League of Augsbourg (1689-97) ended with the Treaty of Ryswick and peace was restored to the mother countries and their colonies.

In the same period, the negotiations undertaken with the Iroquois in 1695 came to a conclusion, marking the end of the last French-Iroquois War (1701).

In 1702, Fort Saint-Louis was completely destroyed by fire and the troops had to be set to work on building a second fort. The rectangular enclosure was built of palisades as the previous one had been. It had a bastion at each corner, a powder magazine in the southeast bastion and a "King's House" near the south wall (Fig. 3). The fort's reconstruction coincided with the renewal of hostilities between France and England and, consequently, between their respective colonies (War of the Spanish Succession, 1701-13).

The threat of an English invasion of Canada via the Richelieu became increasingly serious; in 1709, Governor Vaudreuil gave orders to build a stone fortification that would provide better protection from eventual artillery fire (Fig. 4). In 1752, Franquet described the new fort in these terms:

Fort Chambly forms a perfect square with four bastions; it measures 28 toises between the outer corners. The curtains are 17 toises long, the flanks nine pieds** and the faces 5 toises, 3 pieds. All these parts are pierced with embrasures and crenels, and rise 30 to 31 pieds in height. Everything is constructed of masonry. On the sides that face dry land, the inner walls support buildings used for lodgings, a chapel and stores. On the fourth side, that facing the river, there are other buildings placed on vaults built afterwards and so poorly constructed that they are close to ruin today. And around the inside walls on all four sides, there runs a gallery which is under the cover of the buildings and from which shots can be fired in defence* (Franquet 1974: 86-88 and 168-170).

* A French linear measurement used in fortification, similar to a fathom or roughly six feet. The exact equivalent is 1.949 metres or 6 2/5 English feet.

** A French linear measurement similar to a foot; there were 6 *pieds* in a *toise*.

This work, which was the first masonry fort on the Richelieu, occupied a strategic position between Montréal and New York, and definitely had defensive potential. However, the signing of the Treaty of Utrecht and the long period of peace that ensued meant that the fort's actual defensive strength was not tested. There is some reason to believe that it was not as efficient a defence as it could have been. Gélinas reports that, in 1717, Chaussegros de Lery *père* considered that "the value of the fort resided above all in the strength of its garrison, but this had always been one of its major deficiencies" (Gélinas 1983: 38). Whatever the truth of this statement, the construction of Fort Saint-Frédéric at the southern tip of Lake Champlain in 1738 and of Fort Saint-Jean in 1748 meant that Fort Chambly's defensive role became of secondary importance. Nevertheless, it continued to be part of the military organization of the Richelieu throughout the French regime. After the Treaty of Utrecht, a garrison was maintained at Chambly in the hope that it would slow down the illegal fur trade between Montréal and Albany. This plan was only partially successful. During the War of the Spanish Succession (1740-48), the fort was used as a warehouse for supplying Fort Saint-Frédéric and as a bivouac for troops on their way south.

Throughout the Seven Years' War, Fort Chambly served mainly as a "depot, communications link, bivouac and rallying place" (Gélinas 1983: 40). It might be said that, during this final intercolonial war, the fort regained some of its original status as a key element in the Richelieu's defensive network. This time, however, Fort Chambly was used not for launching an offensive against the Iroquois, but for supporting more advanced posts set up to meet the threat from the English colonies.

After the Conquest, Fort Chambly was occupied by British troops:

> *Troops, though small in number, remained at Fort Chambly after 1763, possibly to keep open the communication with Crown Point at the only portage along the Richelieu between the St. Lawrence and Lake Champlain [...] But as a military post, according to Murray, it was altogether useless* (Nadon 1965: 30).

Several changes were made to the fort at this time, as documented by historical maps and archaeological research. The role assigned to the fort by the British during the American War of Independence resembled the part it played at the end of the French regime: "Chambly like Saint-Jean became a supply base for troops quartering in the area" (Nadon 1965: 35). Occupied by the Americans throughout the winter of 1775-76, the fort was used for detaining unco-operative Canadians (Long and Gusset 1972: 37). On the return of the British army, the retreating rebels set fire to the fort. Archae-

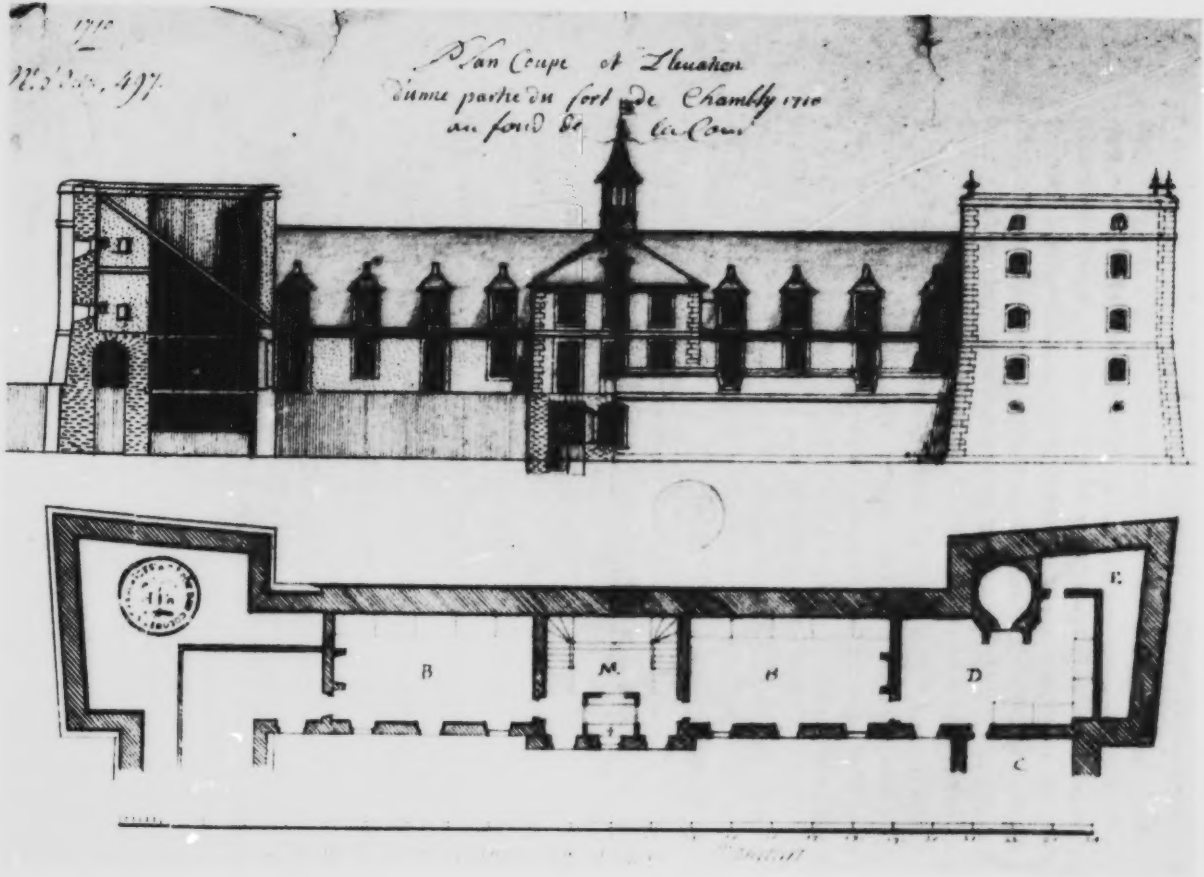
ological investigations in the north wing have revealed some floor damage which may be attributed to this fire.

In 1812, when war broke out once more between the United States and Canada, a large military complex was built near the fort (Fig. 12). This camp contained "barracks for infantry, artillery and cavalry, as well as services related to administration and the distribution of material goods" (Guitard 1980: 4). The fort's status was not effected very much by this change, since from this time on the buildings seem to have been used mainly as warehouses and workshops.

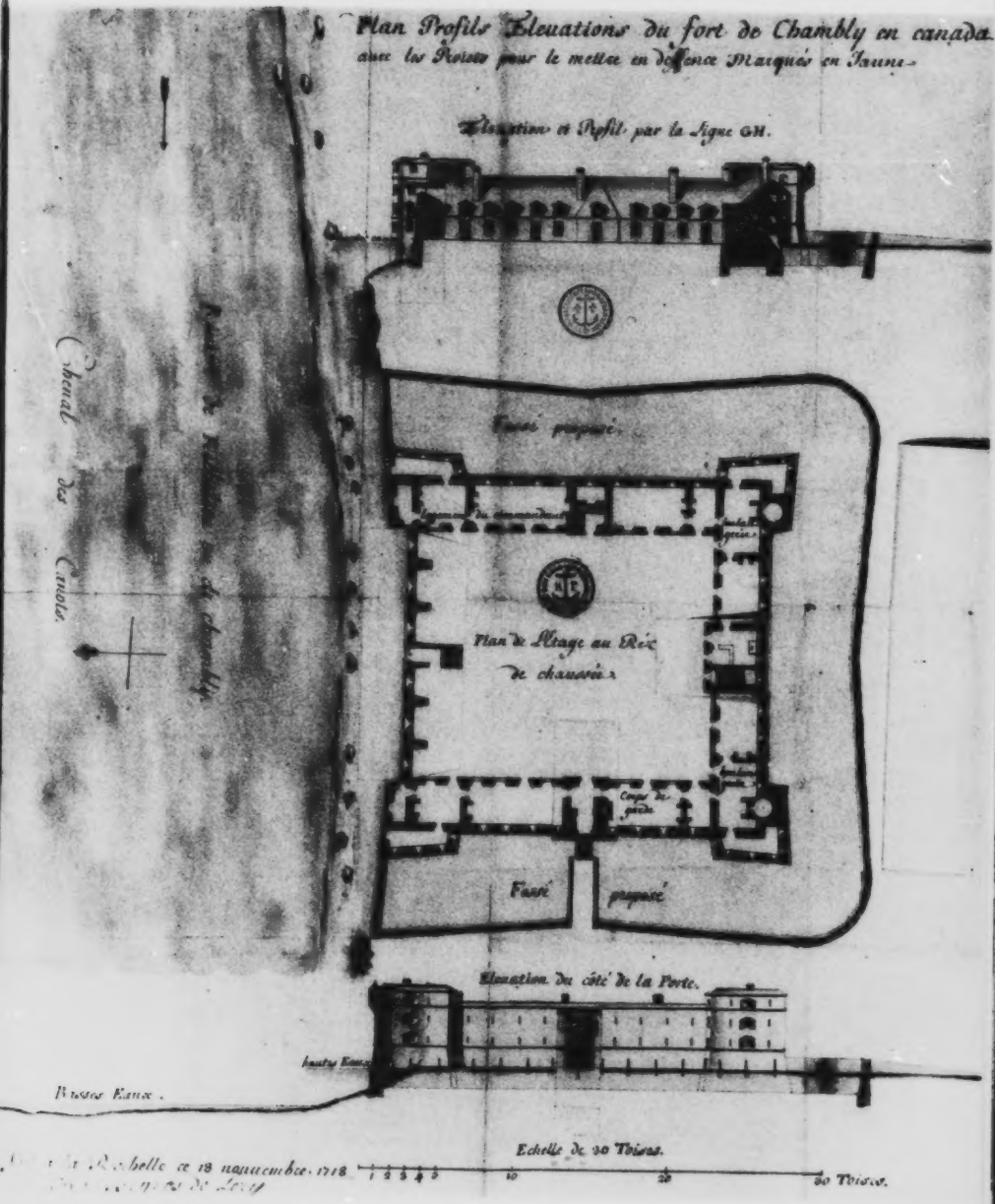
The fort once again played a minor role during the political unrest of 1837-38, before the British army's withdrawal in 1851. It was temporarily occupied by a garrison in 1860 during the Fenian raids. It was the last time. Subsequently, it was used as a warehouse for the militia until 1869 (Thibodeau 1979: 4). From then on, the old fort began to deteriorate rapidly. Following its abandonment, the ageing structure was looted several times and, by 1878, the outer south, east and west walls were the only ones that remained intact (Thibodeau 1979: 9).

In 1882, with the fort falling into ruins, a citizen of Chambly, Joseph-Octave Dion, undertook the first restoration work on the site. The discovery of two glass bottles containing documents related to this early work constitutes the most interesting archaeological evidence from the fort's later period. The bottles had been placed behind a plaque put up in 1884 in honour of Mr. Dion's efforts to have the fort conserved.

Subsequently, the Canadian government recognized the historic value of the old French fortification and helped to conserve it. The maintenance work, repairs and stabilizing work carried out throughout the 20th century attest to this support. Today, the results of historical and archaeological research conducted between 1965 and 1985 are available, and the Canadian Parks Service has reconstructed the building on the basis of actual data and hypothesized measurements. Fort Chambly now welcomes the public to become acquainted with the many facets of its military and historic past.



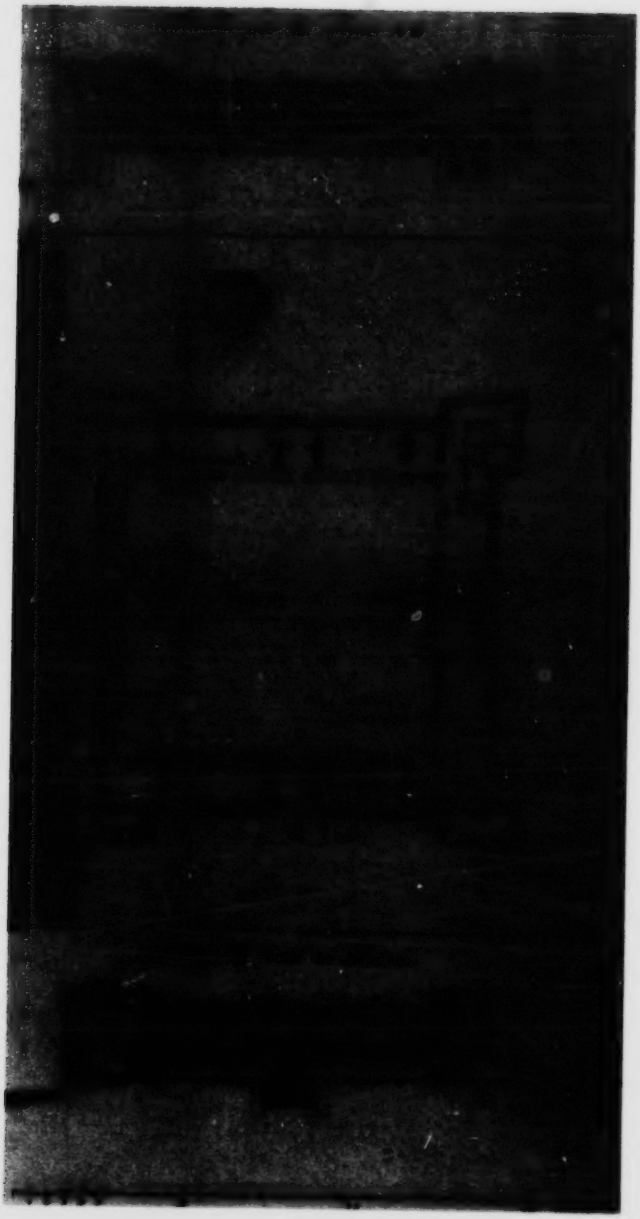
4 South curtain. Plan, cross section and elevation; Beaucours, 1710.


Plan Profils Elevations du fort de Chambly en canada
avec les Reparations pour le mettre en defence Marqués en Jaune
Elevation et Profil par la ligne GH.
Fossé proposé
Plan de l'Etage au Rez de chaussée
Fossé proposé
Elevation du côté de la Porte.
Echelle de 30 Toises.
30 Toises.

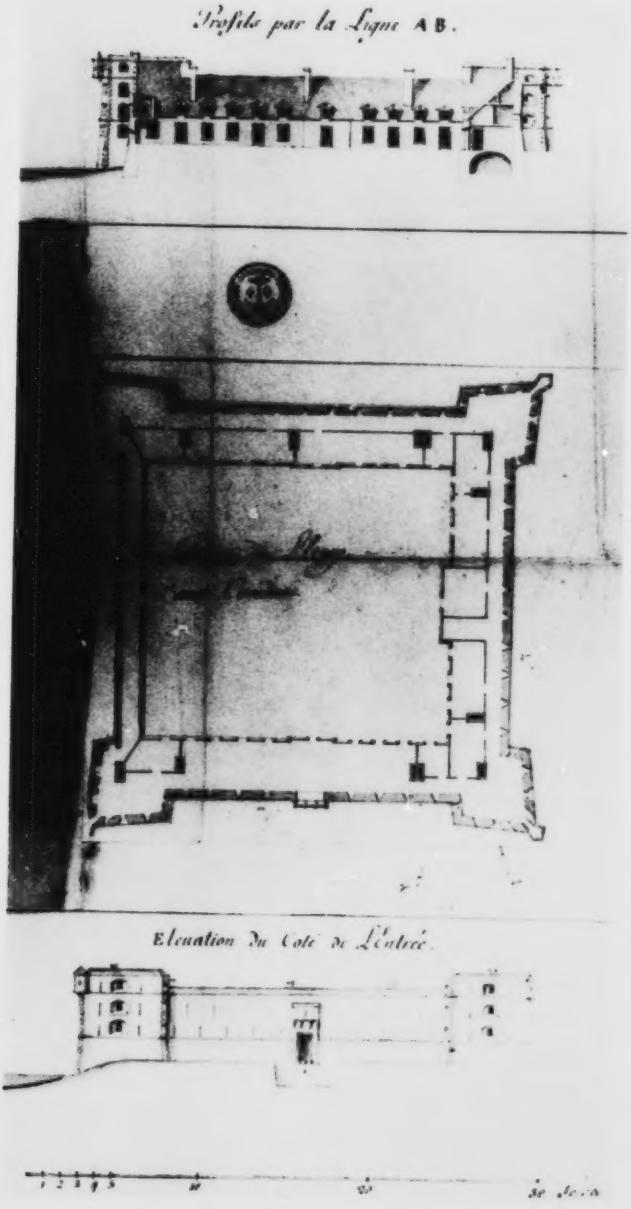
5 Ground floor. Plan and elevations; Chaussegros de Léry père, 1718.

Veuc du Fort de Chambly en Canada.
Nouvelle France, situé sur la Riviere de Richelieu à cinq lieues au Sud
de la ville de Montreal.

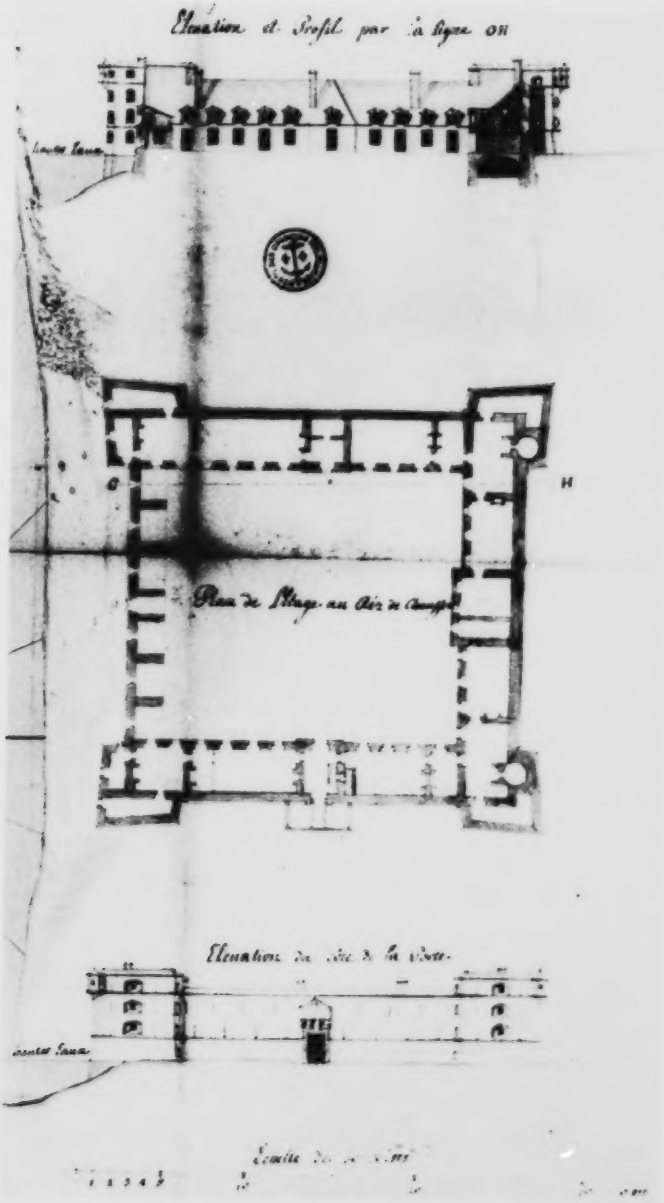
6 View of Fort Chambly in ca. 1721.



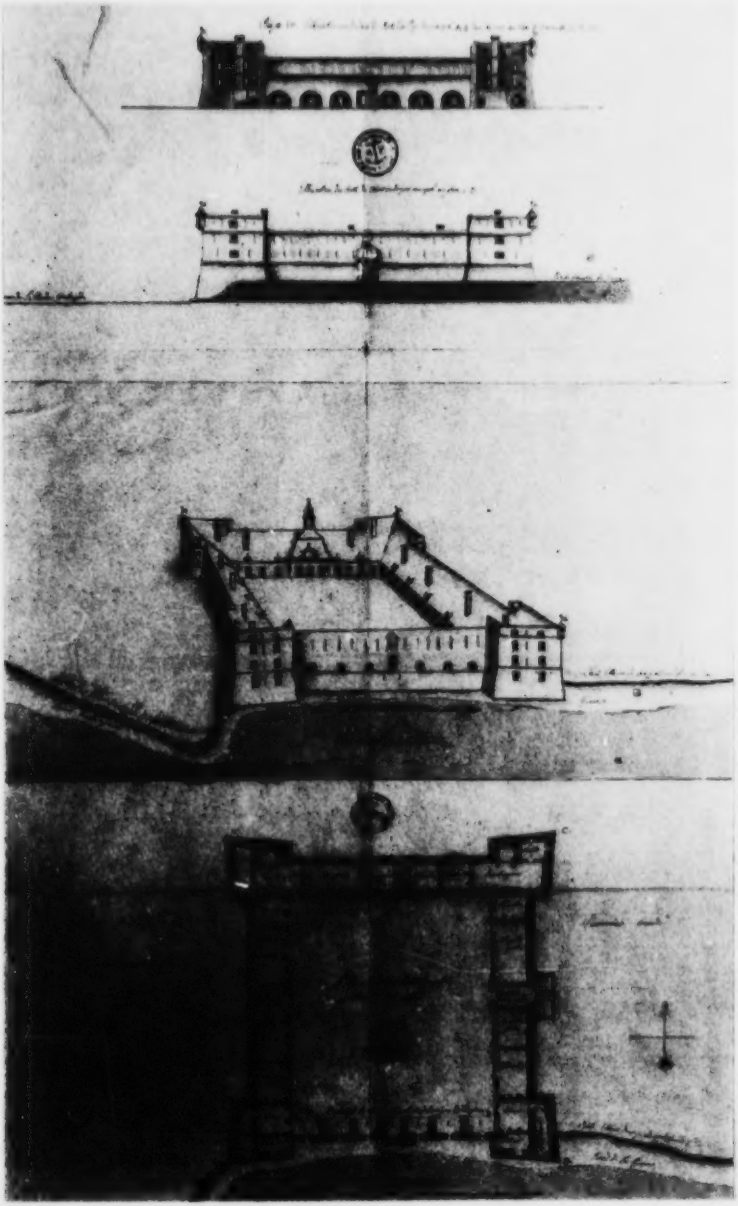
7 Ground floor. Plan, cross section and elevations, 1734.



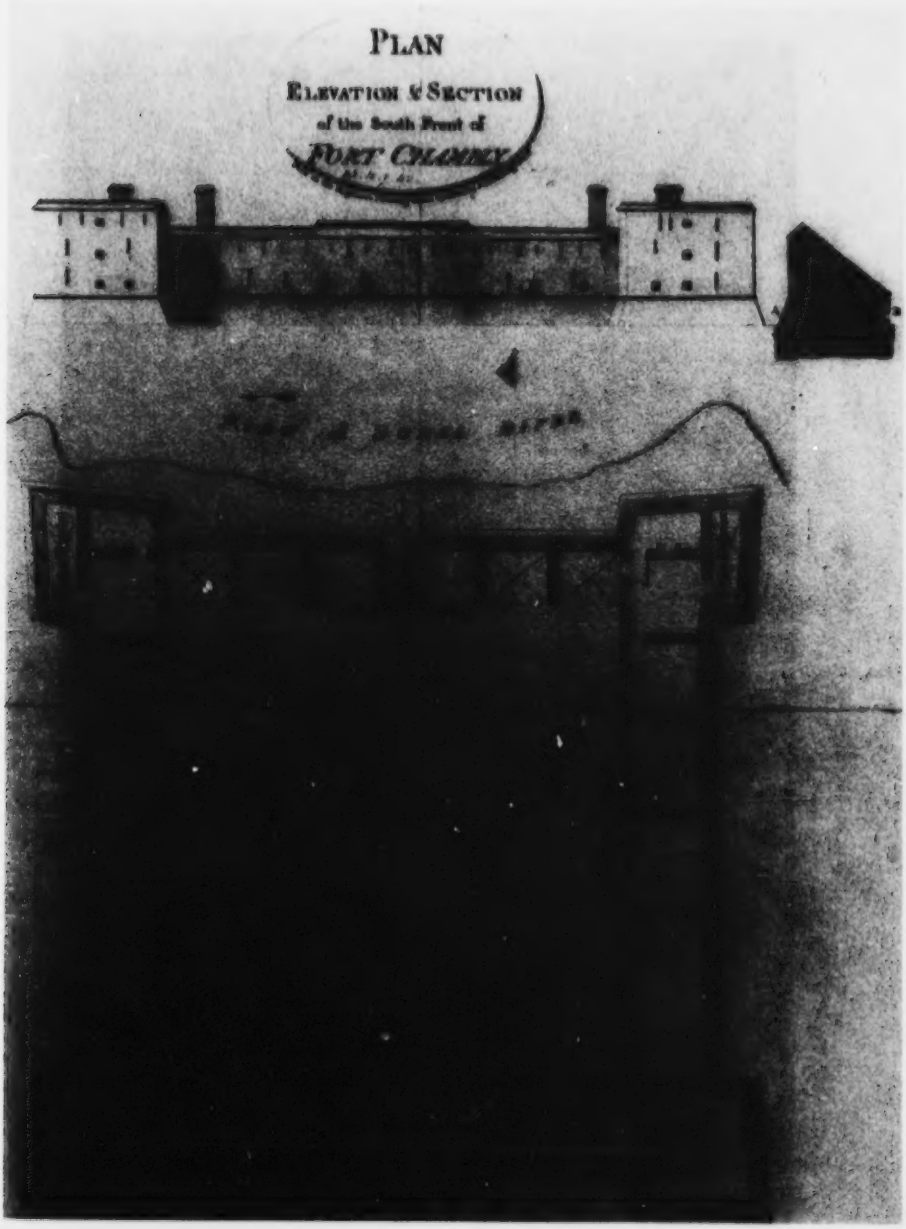
8 Second floor. Plan, cross section and elevations, 1734.



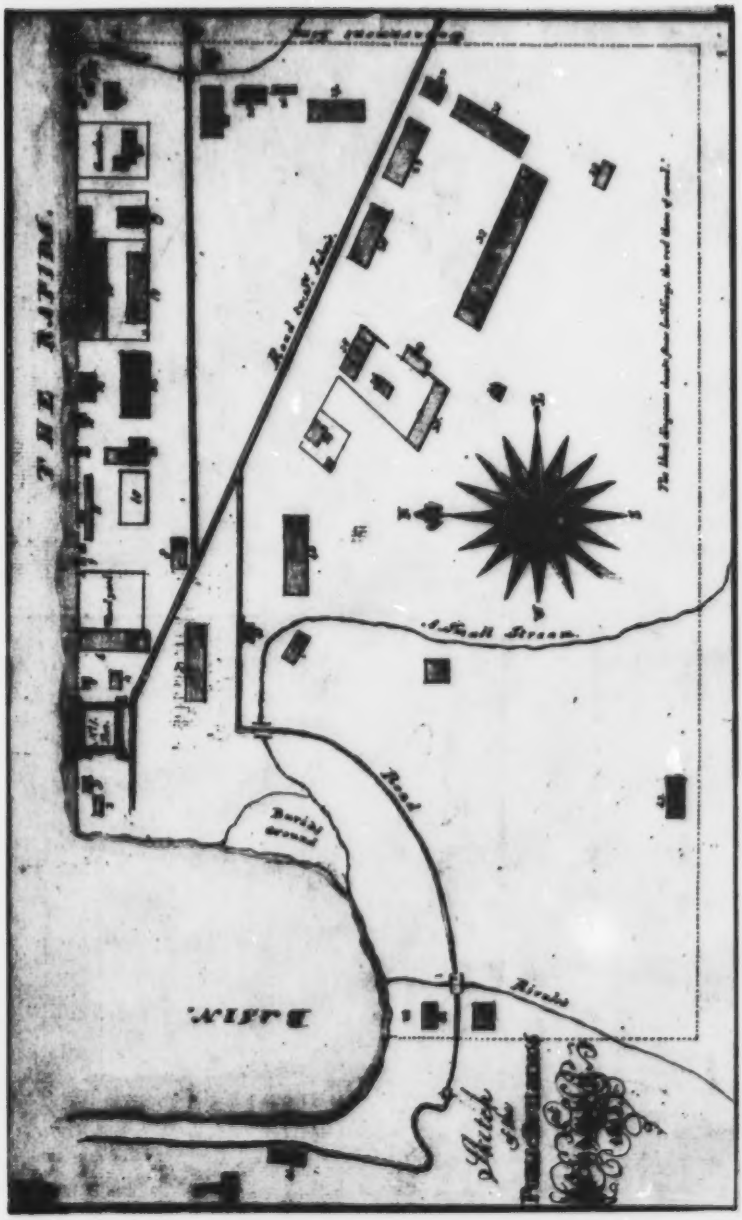
9 Ground floor. Plan, cross section and elevations; Chaussegros de Léry fils, 1738.

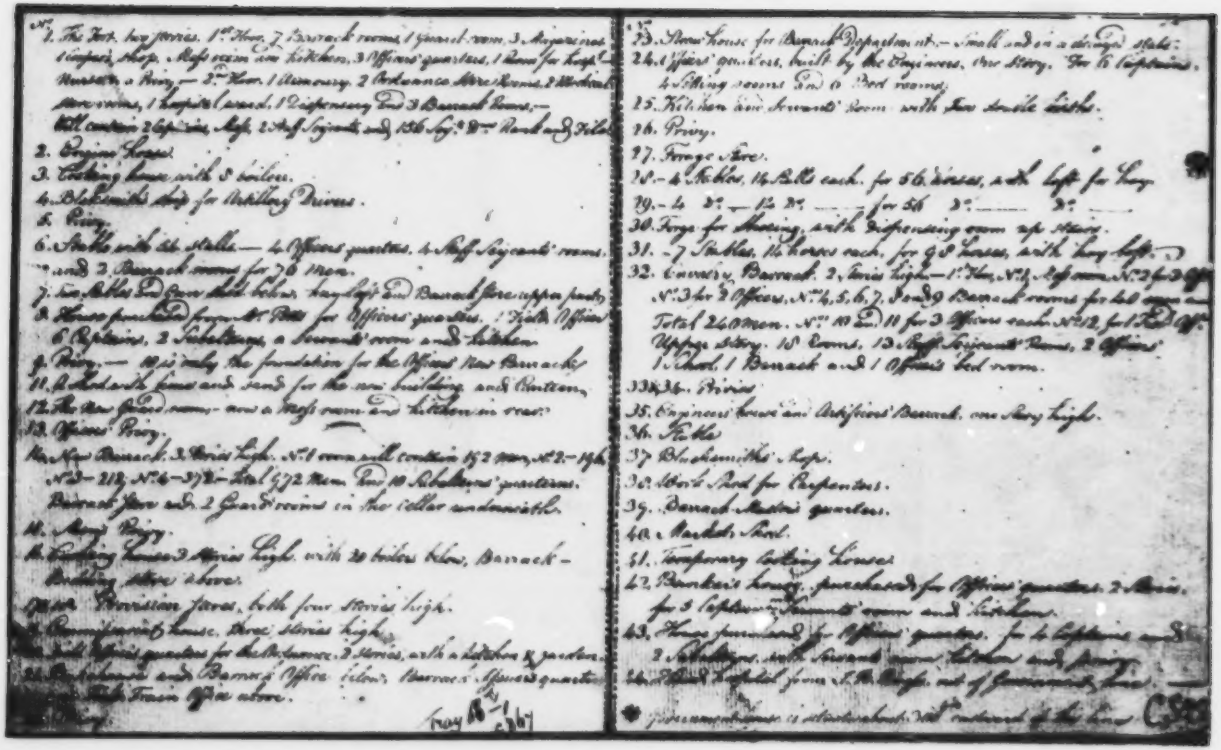


10 Ground floor. Plan, cross section and elevations, 1750.

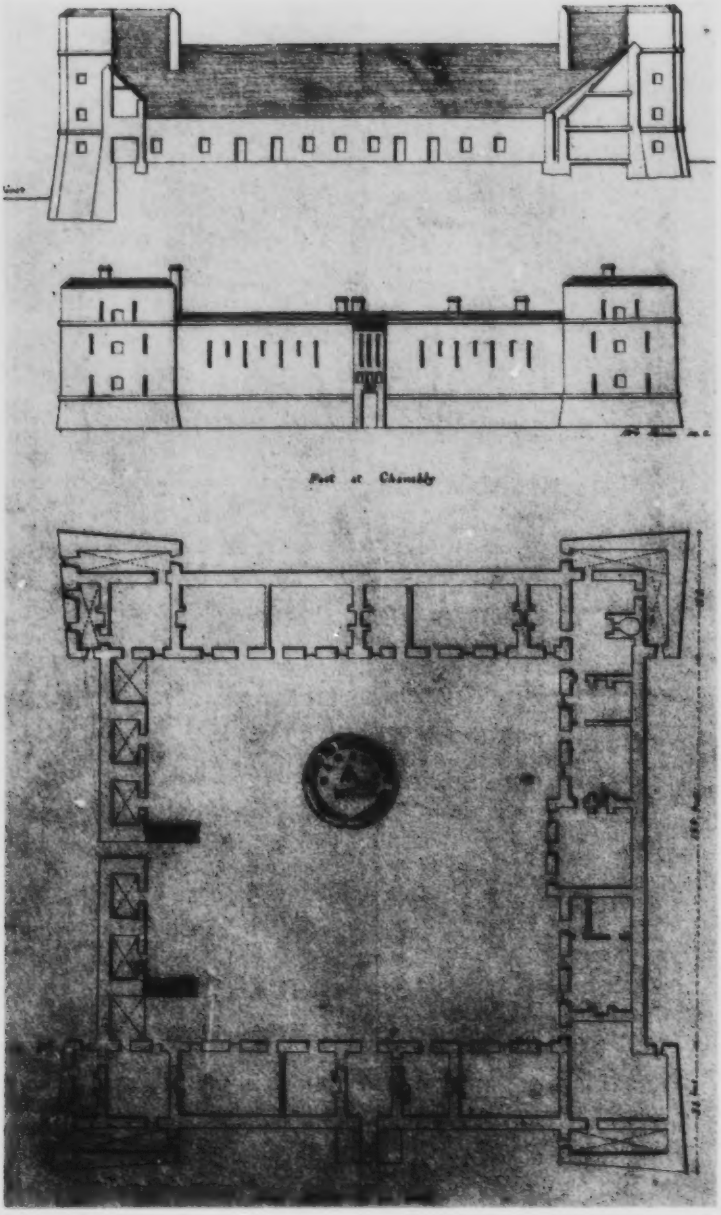


11 Ground floor. Plan, cross section and elevation; Gother Mann, 1800.


THE RAPIDS.
Road to Lake.
A Small Stream.
Road
Burial Ground
Rivulet
Skeleton of a Whale



12 The Chambly military camp, 1815.



13 Ground floor. Plan, cross section and elevation, 1823.

ARCHAEOLOGICAL ACTIVITY: CONTEXT, NATURE AND ROLE

Early archaeological activity

Researchers had their first archaeological glimpse of Fort Chambly in 1967 (Lee and Wylie 1967), as they monitored the technical work being done on the west wing foundations. Architectural structures which had remained buried until then were revealed and recorded. A few years later, in 1971, archaeological excavations were carried out in three areas on the park. A test pit was dug just outside the fort's east curtain, while more extensive research was carried out on the site of the guardhouse and the Fresh Air Home.

The guardhouse, constructed in 1814 at the time of the military camp, was examined again in 1977. Later the building was completely renovated as an architectural testimony to the British troops' presence at Chambly in the 19th century (Fig. 15).

The Fresh Air Home had been constructed near the guard house in 1930 as a vacation camp for underpriviledged children. Excavation work was carried out on this building, a short time before it was demolished, in the hope of discovering whether it stood on the foundations of the old lodgings used by the infantry corps officers in 1839, as recorded by historical documents. Test pits did reveal the old foundations, lying directly under those of the Fresh Air Home. After the building had been demolished, the exposed foundations were re-covered with earth for protection.

In 1971, archaeological research was carried out in anticipation of future restoration work. The main purpose of this research was to compare the state of the original foundations with that of the building above them. A test pit was made outside the middle section of the east curtain. The archaeologist's description of the partially exposed foundations proved, in the course of subsequent excavations, to apply generally to the whole substructure.

The outer face of the foundations [...] consists of undressed stones, which may be angular or rounded, and vary greatly in size and shape, [...] put together haphazardly, so that the courses are sometimes irregular and difficult to distinguish. The thick bulges of mortar between the stones indicates that it was applied unevenly. Mortar is observed mainly in the upper and middle sections of the foundations, while it is absent [...] from the lower parts (Long and Gusset 1972: 13-14).

Intensive excavations

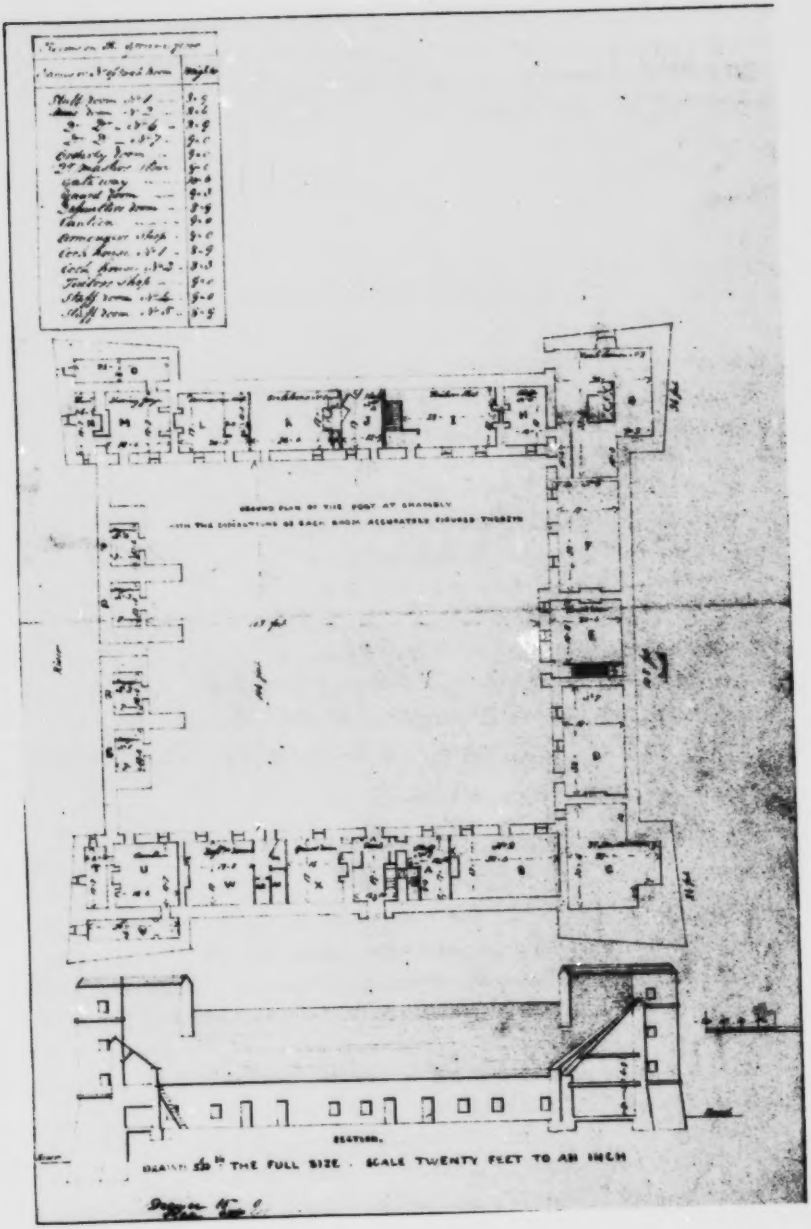
In 1976, 1977 and 1978, a large-scale archaeological research program was conducted with a view to restoring and developing Fort Chambly (Fig. 16). During these three seasons of excavation, several areas inside the fort were studied in great detail in order to extract as much information as possible. Other sectors were only partially studied because the stratigraphic information they offered could be obtained elsewhere, or because there was evidence that the area had been disturbed. This was the case for the east wing.

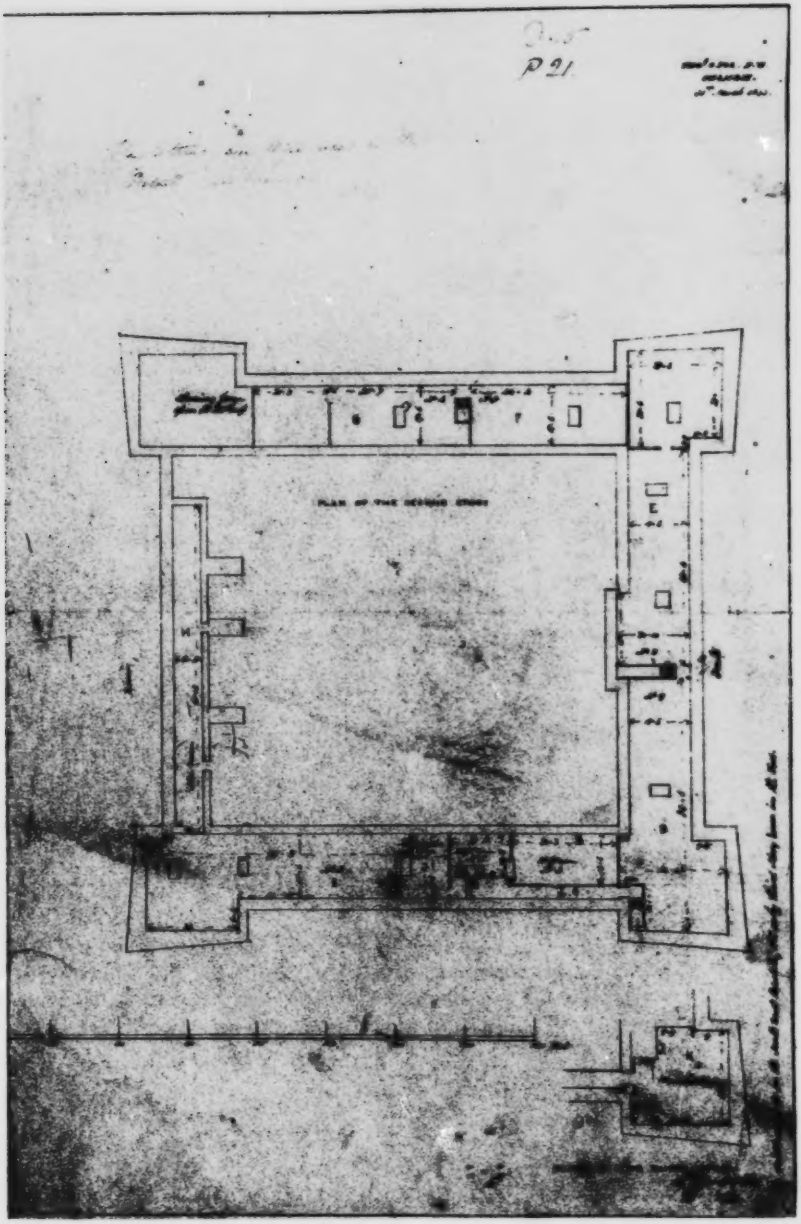
The excavation of the immediate perimeter of the fort was carried out as a salvage operation. The surface layers, whose secrets had been revealed by the test pits dug in 1976, were removed using machinery until traces of the 1702 fire became visible. Below that point, excavation was carried out manually until the original ground level was reached.

Archaeological activity during restoration work

The most recent archaeological work was carried out while the fort was being restored. The task of the archaeologist on the construction site was to ensure that the remains discovered in previous excavations were kept intact and to recommend appropriate measures for their protection while work was in progress. At this time as well, the sectors that previously had been inaccessible because they lay under recent buildings (the southwest bastion and the southern part of the west wing) or that had been only partially excavated (the south wing) received special attention. Several new features were brought to light. However, the nature of the work meant that there was generally little time for extensive recording of data. The only area studied in depth was the southwest bastion; where, for example, the well discovered

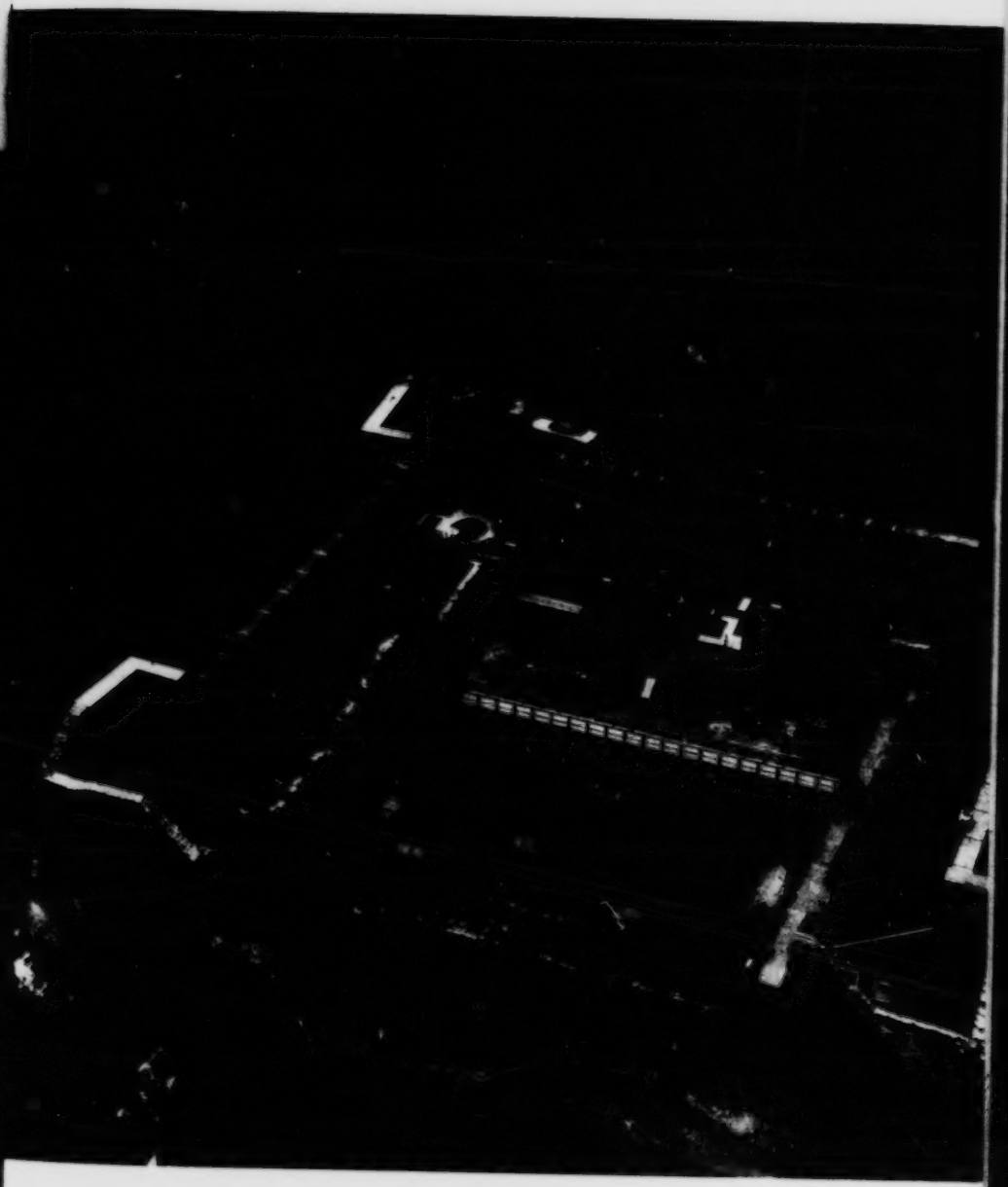
was excavated with great care. The data collected elsewhere was clarified, and in some cases points, which had remained obscure even after the three seasons of excavation, were resolved. This information made it possible to interpret the site's architectural evolution in a more global manner.


GROUND PLAN OF THE FORT AT CHAMBLY
SECTION.
DRAWN TO THE FULL SIZE . SCALE TWENTY FEET TO AN INCH



14 Plan of the ground floor and the two upper floors, 1842.

15 The guardhouse built for the military camp in 1814. It was completely renovated by the Canadian Parks Service in 1977-78.



16 Aerial view of the excavation site in the summer of 1977.

17 Samples of the Indian artifacts found at the Fort Chambly site. From left to right, top to bottom: a flint arrow head, five stone pipes and three rim shards from pottery vessels.

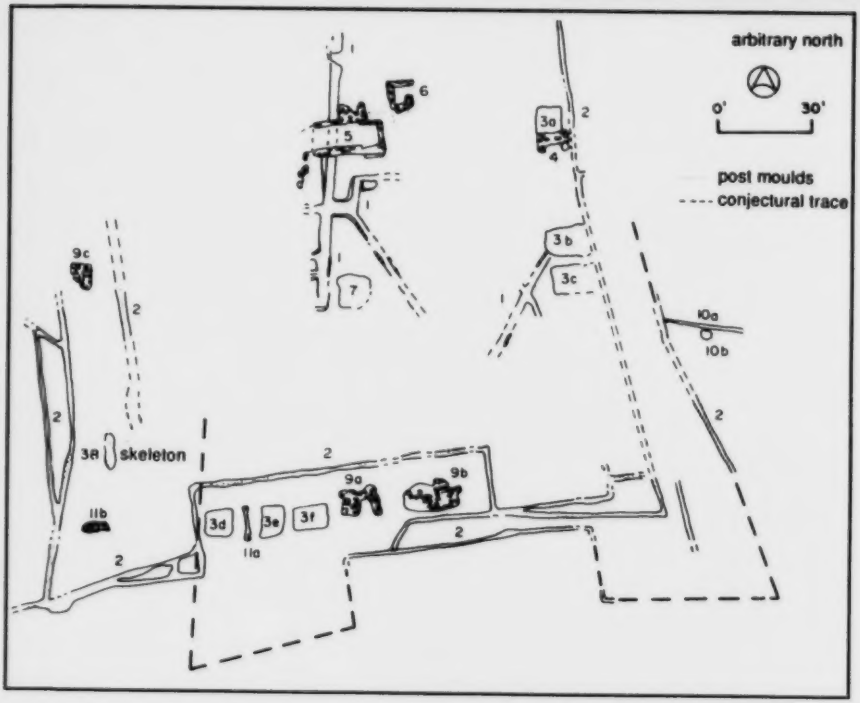
THE PALISADE FORTS OR HOW TO WITHSTAND THE INDIANS

The first fort (1665-1702)

According to historical sources, the palisade fort built by Jacques de Chambly in 1665 formed a square with 144-foot sides. Three of these sides had a triangular redan, while in the fourth there was a door protected by a tambour (Fig. 2; Gélinas 1983: 11). As well, it is known that certain maintenance work was done on the palisade fortification and that improvements were carried out, particularly towards the end of the 17th century. For example, in 1693, Frontenac had the enclosure rebuilt and the interior buildings repaired (Gélinas 1983: 23); a few years later, a contract called for the delivery of 800 planks and 700 beams for refurbishing the fort's buildings (Gélinas and Guitard-Fortin 1979: 21). All of these structures, however, were destroyed in the fire of 1702.

Historical documents and archaeological data do not entirely agree on the shape of the first fort. The principal archaeological features associated with this period consist of segments of ditches corresponding to two different palisades. The two works have identical layouts or traces, both of them being bastioned enclosures, but their positions differ by about 50 feet along their east-west axis and by about 20 feet along their north-south axis. There is no sign of the redans, if indeed they were ever built (Fig. 18: Feature No. 2).

We do not have enough data to determine which of the first fort's two traces is earlier, but we suspect that one of them corresponds to the palisade of 1665, while the other belongs to a fort which may have been built in 1693, when Frontenac decided to refurbish forts Chambly and Sorel (Gélinas 1983: 23). The two traces differ somewhat in size. The more westerly one measures 208 feet from one bastion point to the other, whereas the corresponding measurement for the more easterly one is about 195 feet. It should be mentioned that in the case of both traces only the south bastions have been found.



18 Overall view of the features associated with the first wooden fort, 1665-1702.

19 Part of the features associated with the first fort (south sector). Note the outline of the palisade, fireplace bases and the storage pits.

The palisade ditches which were discovered had been dug directly into the original ground surface. They were one to 1.5 feet deep by one foot wide and contained burned earth mixed with stone fill. Post moulds, indicating the presence of stakes, were found in certain places (Fig. 21; Piédalue 1979: 24). It is quite likely that these palisades were held in place with a system of dovetail joints and horizontal beams, or with cords, so as to use as little building hardware as possible (Miville-Deschênes and Piédalue 1980: 46).

As well as the post moulds, several other features are associated with the first wooden fort. These include: a network of trenches (Fig. 18: Feature No. 1), fireplace bases (Features No. 9a, b, c; Figs. 19, 20), storage cellars (Fig. 18: Features No. 3d, e, f; Figs. 19, 20), sections of walls (Fig. 18: Features No. 11a, b), parts of buildings (Features No. 4, 5, 6; Fig. 22) and one skeleton (Fig. 18: Feature No. 38; Fig. 23). Their association with this period is generally confirmed by the fact that they were totally or partially covered by the 1702 fire stratum, which was found to extend throughout most of the site. In some cases, the period to which these remains belonged could also be surmised from their proximity to the trace of a palisade or simply from the way they lay in relation to the ditches.

Looking at these finds in more detail, we will begin with the network of trenches that probably belonged to the first fort's original enclosure (Fig. 18). These trenches contained burned earth, French and Indian artifacts, and several animal bone fragments. A study of the bone remains led to the conclusion that this evidence of human activity was definitely related to the presence of Europeans.

> *The deposits are unquestionably of European origin, as domestic cow, pig, sheep or chicken bones are present in most of the proveniences* (Walker and Cumbaa 1982: 5).

The study of these bones produced other interesting information. The 122 bone elements identified in the trenches (elements relating to the building period of the first fort) correspond to 28 animal species, 23 of which are wild (Appendix A). An analysis of the identified elements by percentage (Appendix B) shows that the first soldiers' diet included the meat of wild (29.5 %) and domestic (28.7%) animals in equal proportions. However, when wild birds and aquatic animals are added to this group, the percentage of wild species rises considerably, reaching 67.2 percent of the identified species. This suggests that hunting and fishing were activities that contributed significantly to the soldiers' survival. The bones were also studied for signs of modifications made by human beings; for example, cut marks

on the remains of a raven and a turtle indicate that these species were also used as food.

> *Butchered elements are usually interpreted as direct evidence of human use, and as is usual in archaeological sites, mammal bones bear the most cuts and tool marks, as the animals are larger and usually need to be cut up during food preparation. Cuts on the raven and snapping turtle bones are reasonably convincing evidence of the use of these "unusual" food species* (Walker and Cumbaa 1982: 6).

It is nonetheless possible that the fort's occupants used these bones to carve them into small objects, such as buttons and awl handles. The data indicate that the soldiers were fed mainly beef and pork, which was probably salted, as well as mutton and poultry from time to time (Walker and Cumbaa 1982: 5). The meat of sheep and poultry had to be eaten fresh, and the soldiers had neither the time, space nor means to raise these animals. However, they must have been able to obtain them from neighbouring settlements.

A section of the excavated trenches was located under a building that is also associated with the first fort (Fig. 18: Feature No. 5). The foundations of this building were excavated in the central area of the enclosure (Fig. 22). The western part of this building had a cellar, while the eastern part did not. A smaller building is associated with it (Fig. 18: Feature No. 6). The fact that these two buildings were linked physically is indicated by the presence of wooden pickets that once constituted a fence. The first building was identified as a house or workshop because it had a fireplace base, while the other is thought to have been an outbuilding (Piédalue 1979: 29). The remains of what may have been other buildings with fireplaces were also found (Fig. 18: Features No. 9a, b, c), but their identity remains very uncertain.

Several rectangular pits measuring between eight to nine feet wide and nine to 12 feet long were discovered (Features No. 3a, b, c, d, e, f). In all of them, a fill of clay soil with charcoal inclusions lay over a fire stratum. This stratigraphical similarity suggests that the pits were all filled at the same time. As for their use,

> *We suppose that all the pits were used for the same purpose, that is, storage, because of their similar shape and because they are situated where buildings are thought to have once stood* (Piédalue 1979: 26).

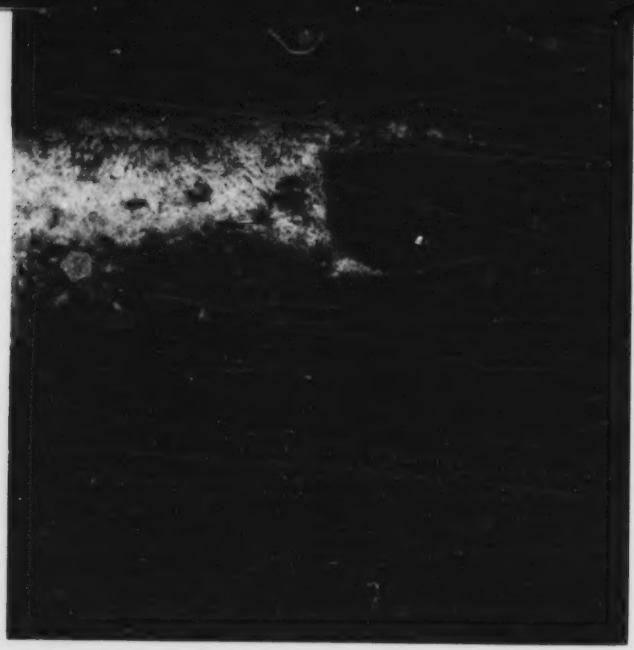
It was common practice in this period, in fact, to store food or other goods in safeholds of this type.

The incomplete state of the two walls found in the south and east areas of the excavated sector made their identification problematic (Fig. 18: Features No. 11a, b). It can only be guessed that they were the inner or outer walls of buildings dating from the time of the first fort.

Another building (Feature No. 4) inside the enclosure might also have been associated with the first fort, since it seems to be related with the storage pit situated immediately to its north (Feature No. 3a). However, neither the stratigraphy nor the artifacts offer definite proof of this hypothesis (Piédalue 1979: 31).

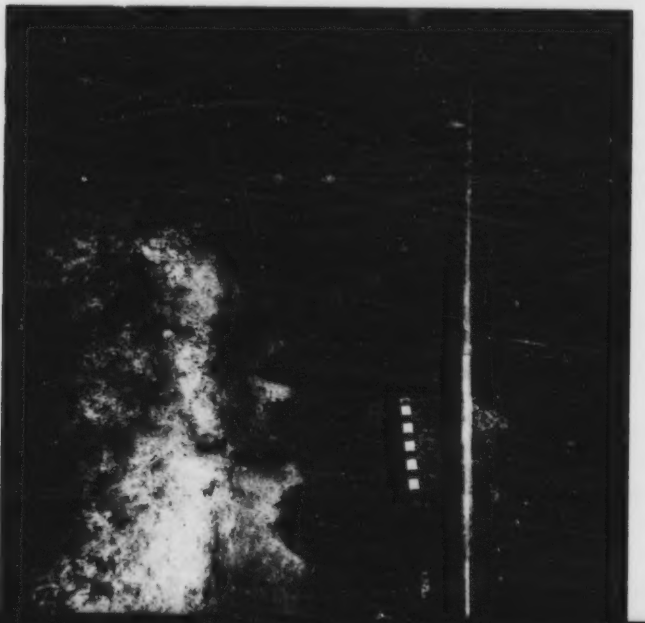
An isolated grave was found, partially covered by the 1702 fire stratum (Fig. 18: Feature No. 38; Fig. 23). It consisted of the remains of a nailed wooden coffin and a skeleton. As well, the traces of a wooden picket stuck into a pile of stones was found at the head of the grave. An analysis of the skeletal remains showed that they "... most probably were those of a tall adult male Indian, who had died at about 35 years of age of unknown causes ..." (Clermont 1978: 5). The absence of dental decay indicates that the man's diet was low in carbohydrates and, therefore, that he had not been in contact with Europeans for very long (Clermont 1978: letter). The presence of a coffin implies that the man was buried by Europeans, while the possibility that the grave was marked with a cross, as suggested by the wooden picket and stones, indicates that he was baptized. The 18 human bone fragments identified in Walker and Cumbaa's study of bones found on the site (1982: 20) are evidence that the remains of at least one other human being are associated with this period.

The numerous palisade ditches dating from the time of the first fort are evidence of the frequent need to repair and improve the fort before the fire of 1702. There were many reasons for this work, but the entry of the English into the French-Iroquois conflict in 1693, combined with the perishable nature of the wooden structure, must have been powerful incentives. We will return to this period in our discussion of life in the fort further on in the chapter.



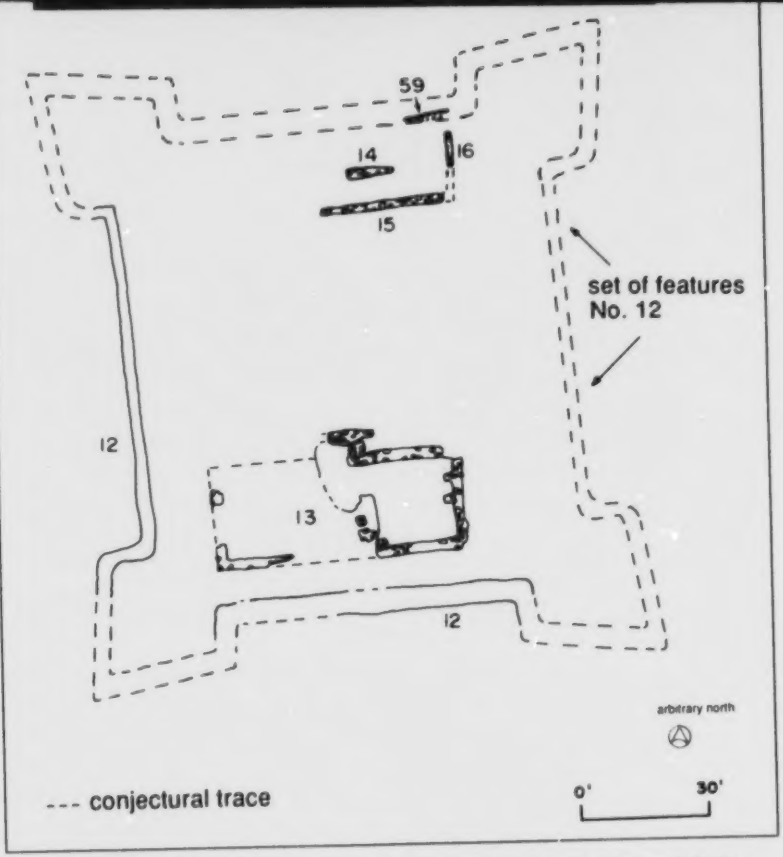
20 Fireplace base (9a) and storage pits from the first fort. Palisade ditch and post moulds in the foreground.

21 Post moulds in one of the palisade ditches belonging to the first fort.



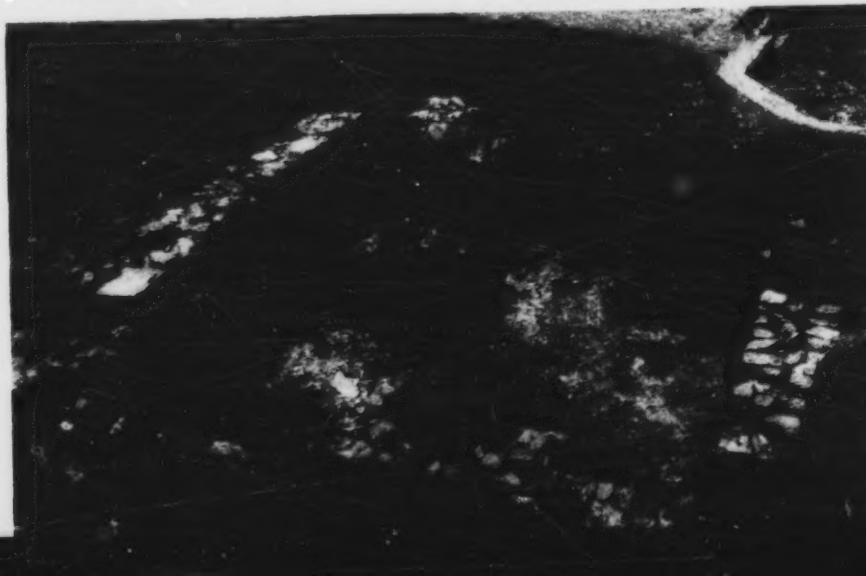
22 Foundations of a building associated with the first fort (Feature No. 5). In the background (upper lefthand corner), notice the remains of another small building associated with the larger one. Its eastern end was partially destroyed when a drain was constructed in about 1760.

23 Indian skeleton associated with the first fort.



24 Overview of the features associated with the second wooden fort, 1702-09.

25 Stone and clay foundations of the King's Store associated with the second wooden fort.



The second wooden fort (1702-09)

The second fort at Chambly was constructed during a turbulent period of history. There was little choice but to rebuild, since Fort Saint-Louis had burned in 1702 and relations between the two mother countries were becoming hostile again.

The remains identified as belonging to the second building (Fig. 24) are much easier to understand than those associated with the first fort. By comparing archaeological data with the historic plan of 1704 (Fig. 3), it is possible to reproduce the entire perimeter of the new fort and to identify the remains of the King's Store in the south part of the enclosure (Fig. 24: Feature No. 13; Fig. 25). In the north sector, excavations revealed other foundations as well as a drain (Fig. 24: Features No. 14, 15, 16, 59). These foundations do not appear on the 1704 plan and we have been unable to identify them. However, their position in the stratigraphy clearly indicates that they belong to the period of the second wooden fort.

The rectangular enclosure with its symmetrical bastions at each corner is represented by the remains of the construction ditches for the west and south curtains, parts of the flanks of both south bastions and the northwest bastion and part of the right face of the southwest bastion (Fig. 24). All the other parts of the enclosure were obliterated when the stone fort was built in 1709.

> *The building technique was quite different than that used for the first fort. The construction ditches were dug directly into the ground surface; they measured about 3 feet wide by 3 feet deep. The south face of the ditch was shaped into two steps which became more sharply defined towards the eastern end; the wall bore the marks of horizontal pieces of wood, held in place by vertical timbers. This suggests a fairly complex framework that could join a foundation of horizontal and vertical timbers intended to support an upright stake superstructure. The width of the ditch would have made it easier to assemble these timbers* (Piédalue 1979: 34).

Although reference to a palisade has been found in historical documents (Gélinas and Guitard-Fortin 1979: 5), only one stake was found in the excavated trenches. It is possible that the enclosure was dismantled rather than demolished.

The King's Store, which was the largest structure built inside the second wooden fort, was probably used as both a warehouse and a dwelling (Piédalue 1979: 36). The dry masonry foundations built of field stone are

thought to have supported a wooden superstructure (Fig. 25). The eastern part of the King's Store was built over a cellar; the remains of a wooden floor found at the bottom of this cellar represent a level of occupation dating from the time when the building was in use: "There seems to have been a cellar door with inner stairs on the east side, and another door with outer stairs on the north side" (Piédalue 1979: 36).

The layout of the foundations discovered in the northern part of the enclosure (Fig. 24: Features No. 14, 15, 16) indicates that they must have been made before the stone fort. Since they lie above the 1702 fire stratum, they have been associated with the second fort. Although the presence of wall No. 14 has not yet been explained, Features No. 15 and 16 appear to belong to the same building.

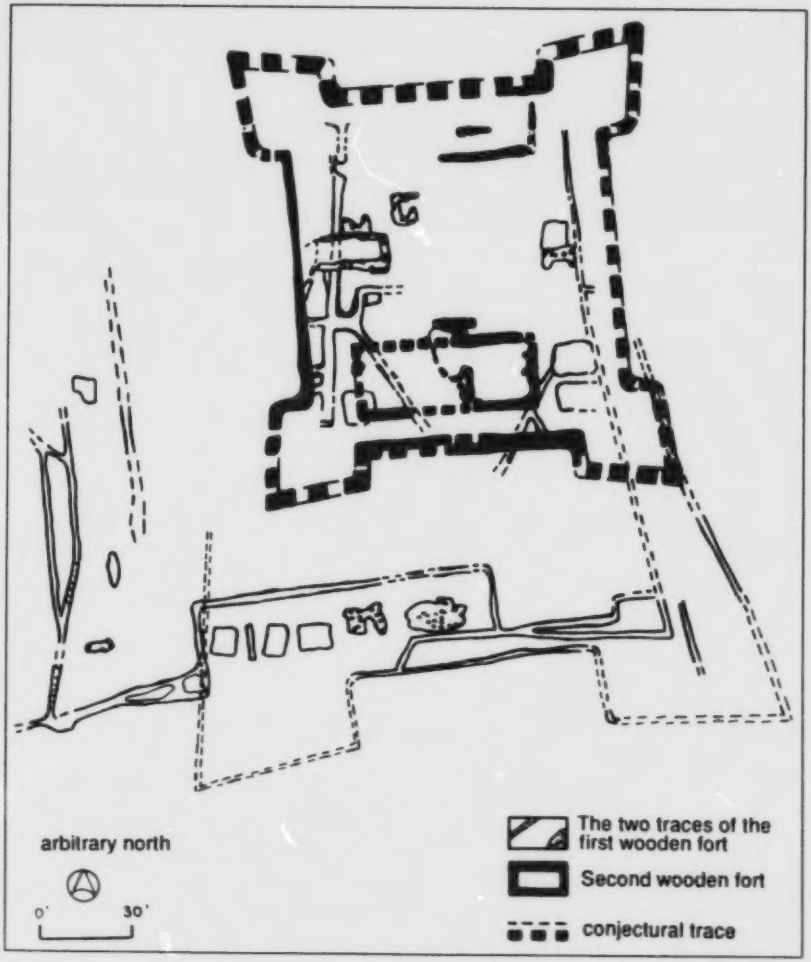
> *If lines are extended along walls No. 15 and 16, they will meet at an angle of about 90°; as well, the bases of both walls are at the same level* (Piédalue 1979: 38).

Parts of these walls were demolished when a sewage system was installed in the 20th century. The building was probably used for military purposes, either as a guardhouse or a warehouse because of its proximity to the river.

The remains of a drain were discovered inside the present north curtain (Fig. 24: Feature No. 59). Given its stratigraphic position and the fact that it runs parallel to the foundations of the building associated with walls No. 15 and 16, it is likely that this construction dates from the time of the second wooden fort (Cloutier-Nadeau 1981: 35).

No trace was found of the powder magazine that appears in the southeast bastion on the plan of 1704 (Fig. 3). It is probable that this building disappeared when the stone fort was built.

In summary, the 1702 fort was erected to meet emergency needs and should be considered a stopgap measure. The wooden structure could in no way have constituted an effective defence in a European-style war involving artillery weapons. The colonial authorities were aware of the gravity of the problem and therefore decided, in 1709, to replace the old fort with a stone one that would answer defence needs more adequately.



26 Overall view of the features associated with various stages in the site's physical evolution before the construction of the stone fort.

Life behind the palisades

Relatively little is known about how people lived behind the various palisades set up successively at Fort Chambly. There are few archival documents that provide information on the occupants' activities, and the artifacts reveal little about life in the fort. Some details have been learned, however, and in the following pages we will present some results of artifact research, enriched with data from other sources. We have chosen to present all the information pertaining to the timber forts in the same section. They may be dealt with together since the physical context, which generally influences living conditions to some degree, was similar for both wooden forts, and because the fire of 1702 may be considered to have interrupted the garrison's way of life only briefly.

TROOP STRENGTH

The size of the garrison posted at Chambly in the French regime varied considerably depending on the military situation. This does not mean that the occupants of the palisaded forts were ever numerous enough for the task. It is believed that a fairly large contingent of soldiers from the Carignan-Salières regiment were posted at the fort in the beginning, but subsequently the number steadily declined.

> *Chambly dropped from 70 men in 1671 to total abandonment in subsequent years. In 1679, no garrison was stationed at the fort, and Frontenac seriously considered installing one to clamp down on smuggling [many French traders kept Albany's warehouses well supplied with furs]. A shortage of soldiers obliged him to postpone this project until 1681, when he asked the Minister for troops for this purpose. His appeals fell on deaf ears until two years later, when deteriorating relations with the Iroquois led to the sending of the first 2 contigents of the Troupes franches de la marine* (Gélinas 1983: 46).

Table 1 illustrates the weakness of the forts' garrisons. It is evident that under normal circumstances the troops posted at Chambly were quite limited in number. Besides the garrison, a few civilians are known to have worked regularly at the fort. A storeman and a baker were employed almost continuously, while other dayworkers or skilled labourers (blacksmiths, locksmiths, masons, carters and laundresses) were hired from time to time. Furthermore, there is evidence that a chaplain served both the garrison and the civilian population at Chambly from 1665 to 1667 and from 1671 to 1742 (Miville-Deschênes 1987:

31). However, the chaplain is no longer mentioned to the fort's annual statement of expenses following the garrison cutbacks of 1742 (Gélinas 1983: 48).

TABLE 1
Number of soldiers posted at the wooden forts

1667	100 men, 30 of whom were sent to Fort Sainte-Anne
1668	at least 66 men
1671	70 men
1679	0
1681	0
1686	18 men, 1 lieutenant and 2 sergeants
1687-1699	on average, 50 men
1691	in August, 200 men
1699-1741	on average, 20 to 25 men
1704	23 men
1708	16 men

(Miville-Deschênes 1987: based on Table 7)

ACTIVITIES

It is difficult to have an exact picture of what life was like for the garrison living behind the palisades of Fort Chambly. Historical sources have little to say on the matter and archaeological remains do not provide information on every material aspect of the soldiers' lives. However, it is clear from the few historical sources dealing with living conditions at Fort Chambly, or similar posts, that life was generally difficult.

According to Cyrille Gélinas, adapting to the climate was the first occupants' most serious problem. Winter inevitably brought illness with it, and often, death (Gélinas 1983: 49). The soldiers' tasks included cutting the wood required for heating and cooking. Despite the abundance of nearby fuel, fear of the Iroquois made this task so demoralizing for the soldiers in time of war that they often fell ill and sometimes died. "We even believe that this is the main reason for the level of mortality in the forts, a matter of excessive confinement, in addition to the salted meat that they must eat" (Denonville 1688 in Gélinas 1983: 51). Although this is an isolated obser-

vation, it gives us some idea of what the atmosphere might have been at Chambly towards the end of the 17th century.

The soldiers did not just busy themselves with purely military activities and wood cutting; we know that they also devoted much of their time to hunting and fishing. It was also common for soldiers to garden and engage in other agricultural work (Gélinas 1983: 52). The soldiers may also have taken advantage of the natural resources around them by gathering wild berries and plants.

An analysis of the artifacts according to their function and material clarifies some details of life behind the palisades. From a functional point of view, the 207 objects related to the occupation of the first wooden fort do not differ greatly from the 105 objects associated with the second one (Table 2). Thus, the objects from both layers of occupation, as well as from the fire stratum separating them, provide evidence of activities linked mainly with consumption and, to a lesser degree, work on materials. The percentage of artifacts related to consumption, and in particular food, is high because such objects are often made of resistant materials such as ceramic and glass (Miville-Deschênes 1987: 26). There are, however, some differences in the percentages related to the two forts. Compared with the first fort, the second fort has 18 percent more objects related to consumption, and nine percent (or about two-thirds) fewer artifacts related to work; the percentage of social and ideological objects drops to nearly zero in the second fort. This increase in objects linked with consumption combined with a decrease in other types seems to parallel the growing prosperity which the colony began to enjoy at the beginning of the 18th century (Miville-Deschênes 1987: 25). However, since these statistics are based on only a few hundred artifacts, it is probably not worthwhile to try to interpret them in greater depth. They show that the objects used by the forts' occupants were generally not very luxurious, but that standards of living probably improved with time. Our best source of information about the soldiers' actual eating habits is a report on the bones found during the excavations.

TABLE 2
The wooden forts: distribution of objects according to function (percentage)

FUNCTIONS	1st WOODEN FORT (207 OBJECTS)	FIRE STRATUM (201 OBJECTS)	2ND WOODEN FORT (105 OBJECTS)
Work on materials	12.08	14.43	3.80
Acquisition	2.42	3.48	1.90
Consumption			
Food	43.96	48.26	65.71
Narcotics	11.11	10.95	9.52
Medication	0.0	0.0	0.0
Clothing	3.39	6.47	1.90
Personal Care	0.48	1.00	0.95
Construction	0.0	0.0	0.0
Undetermined	15.46	7.96	14.29
Total	74.40	74.64	92.37
Social and ideological objects	3.86	1.50	0.0
Undetermined	7.25	5.97	1.90

(Taken from Miville-Deschênes 1987: 16)

FOOD

The zooarchaeological remains are informative about several important aspects of the garrison's eating habits, particularly with respect to the species of animals eaten and the way they were prepared. Furthermore, a comparison of data from the first fort with data from the second reveals a certain evolution in the occupants' eating habits, a change in the availability of wild and domestic animals, or a combination of these factors (Appendix B). In the following sections we will take a brief look at the characteristics of these two periods.

The first fort

During this period, the food eaten by the soldiers seems to have included the fresh and salted meat of animals such as pigs (always well represented),

cows and sheep (Walker and Cumbaa 1982: 14; Appendix A). Some poultry, including chicken and turkey, appears to have been eaten. However, it is unlikely that the few cat and dog bones belonged to animals that were used for food. Cats and dogs no doubt played their normal roles as mouser and man's best friend. At least one of these animals had a special position, according to the following account:

> *At a time when the supply routes to Fort Chambly were often threatened by marauding Iroquois, an ingenious system was worked out to keep the communications with Montréal open. A young dog, brought by Commander Blais de Bergeres to Chambly from Niagara, in 1688, was trained to carry messages between Laprairie and Chambly. The canine soldier carried out this mission quite successfully for a number of years* (Nadon 1965: 9).

The number of bones belonging to domestic and wild mammals is somewhat similar for both forts: first fort, 488 bones; second fort, 411 bones (Appendix A). According to the authors of the zooarchaeological study though, wild species played a more important part in the diet of the first fort's occupants: beaver, black bear, moose, wapiti and other mammals are represented in greater numbers (258) than are domestic mammals (230) (Walker and Cumbaa 1982: 15). The diet of the second fort's occupants, however, showed wild mammal numbering 117 while domestic mammal totalled 294. If fish and wild birds (Appendices A and B) are taken into account, it becomes evident that hunting, fishing and trapping contributed enormously to the diet of the first fort's occupants (641) and less to the second's (359). There is a supprising variety in the fish and birds represented: more than 20 species of birds, ranging from the bald eagle to the eastern meadowlark, and about 15 species of fish, including smallmouth bass and shorthead redhorse. Furthermore, the remains of several kinds of edible turtles were found as well as the bones of a frog and an American toad.

The goose is the bird species represented by the greatest number of individual remains in the contexts associated with the first fort. Other wild bird species whose presence is attested by at least four individuals include ruffed grouse, short-billed dowitcher and passenger pigeon. The species of fish represented by the most specimens are channel catfish and suckers. Cod is the only species found that could not have been fished in bodies of water near the fort.

Cultural modifications appear on some 10 percent of the 2746 skeletal remains associated with the first wooden forts; these bones bear the marks of knives, cleavers or axes (Walker and Cumbaa 1982: 15). Such marks are

characteristic of common butchering techniques in the 18th century. Apart from these cut marks, there is evidence of burning on a little more than 100 specimens. It is impossible, however, to determine exactly why these bones were exposed to fire.

The fire stratum

The bones found in the 1702 fire stratum are difficult to associate specifically with one or the other of the wooden forts. Nevertheless, some of these remains' characteristics should be noted. A study of the stratum revealed 16 mammal species (4 domestic and 12 wild), 18 bird species, 16 fish species and 4 turtle species (Walker and Cumbaa 1982: 26). For the first time, there is evidence that rats were present in the fort. However, the small number of bones found indicates the rat did not create a serious problem for food storage.

The butchering marks found on the bones of cows, moose and wapitis are similar to those identified on the bones associated with the first fort. These marks, as well as the absence of bones belonging to certain parts of domestic mammals, suggest that meat was usually cooked in large cuts and that the soldiers rarely ate the choice parts. There is also evidence that domestic animals were butchered elsewhere than on the site. Large wild mammals, however, were cut into pieces at the fort, since bones from every part of the animal, including the most tender parts, are found (Walker and Cumbaa 1982: 30-31).

The second fort

Compared with the contexts of first wooden fort, those of the second wooden fort show a considerable increase in the percentage of domestic mammals eaten and a marked decrease in the corresponding percentage of wild mammals. On the other hand, there are far fewer fish remains (144 or 21%) in proportion to mammal and bird remains than is the case for the first fort where fish remains numbered 295 or 32.9%. The variety of fish species though, remains as great as before. Perhaps the conditions for fishing were no longer as good; there may have been fewer fish in nearby streams and rivers, or enthusiasm for this pastime may have simply faded. It is difficult to know what the cause was, especially since fish once more became an important part of the soldiers' diet after the construction of the stone fort (189 elements or 35.9%). Wild birds seem to have been used in greater quantities at the second fort (98 elements or 14.3% to 88 elements or 9.8% at the first), but the number of species remained about the same.

The percentage found is not the only characteristic that distinguishes the animal remains of the second fort from those of the first fort and the fire stratum. For example, the rat, a rodent generally disdained today, seems to have been occasionally used for human consumption in the second fort. Bones belonging to at least two of these small creatures have knife marks suggesting that they were used for food. Furthermore, large domestic animals, such as pigs, cows and sheep, were now butchered entirely on the site, since bones from all parts of the animals are found. It would seem that fresh meat from domestic animals was more available, making hunting for food less of a necessity (Walker and Cumbaa 1982: 48 and 49). The growth of the civilian population at Chambly and in the surrounding seigneuries no doubt had an influence on these changes in the garrison's eating habits.

In the light of these data, it appears that the daily life of the soldiers garrisoned at Chambly improved considerably throughout the occupation of the second fort. Obtaining supplies seems to have become less problematic than it had been at first. This improvement in living conditions, especially with respect to food, is reflected in the increase in consumption-related objects and domestic animal remains associated with the period. The decrease in artifacts related to work on materials might be explained in part by the fact that the growing civilian population offered such services outside the fort.

THE STONE FORT OR HOW TO WITHSTAND THE ENGLISH

The threat of invasion that hung over New France in 1709 persuaded the colonial authorities to undertake the construction of a new fort at Chambly in the following spring. This third and final defensive work was very different from its predecessors. Instead of a palisade, it had masonry walls that afforded the occupants better protection from both English attack and inclement weather.

Numerous archaeological remains bear witness to the work of military engineer Josué Boisberthelot de Beaucours and the transformations it later underwent. They reflect not only the defensive role for which the fort was built, but also the evolution of its function and of its structures. By looking at these remains and artifacts, starting with the fort's construction, we are able to trace the story of its changing identity.

The fortification was originally designed to withstand an attack by troops backed by small cannon. Consequently, it did not require massive earthworks but, rather, solid walls laid out according to well-proven geometrical rules and containing openings through which the defenders could keep watch and fire arms. Beaucours, decided to build a square work with four bastions and curtains. Inside the fort, long buildings were built against the curtains; they were divided into several rooms, which might be either multifunctional or used for a single purpose. In the middle of the defensive work, there was a yard. The fort's sole gate was in the centre of the west curtain. The only other entrance was a postern facing the river shore on the north side.

What remains of Beaucours' work? Probably only some elements of the original foundations have survived to this day. The fort underwent so many repairs and transformations that in several places nothing remains of the original construction. Still, some remnants of the first stone fort exist, such as portions of the enclosure and internal walls, a well, latrines, fireplace bases and the remains of cellar entrances, as well as other elements found here and there at the level of the foundations (Fig. 49). Most of these

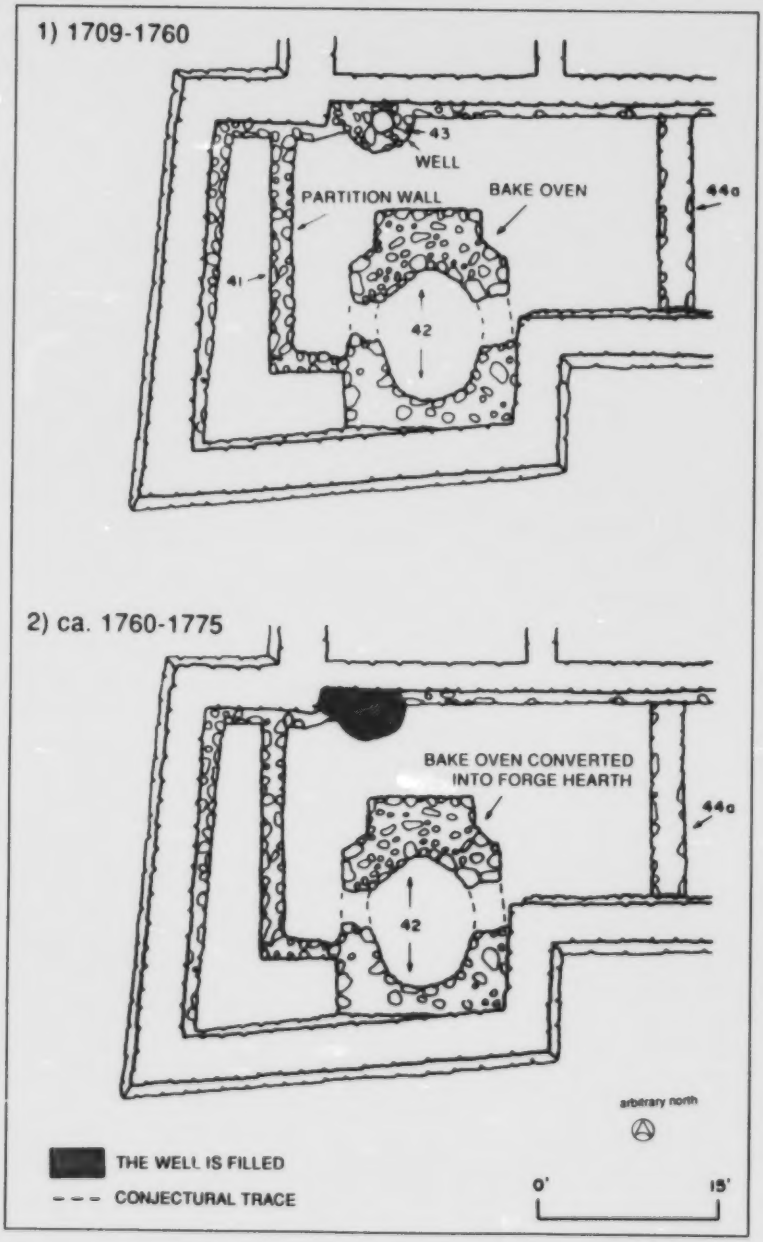
elements are related to the occupants' daily lives, while the others reflect the fort's defensive role.

The fort underwent its first major transformation between 1718 and 1720. The military engineer Chaussegros de Lery *père* proposed and carried out a whole series of modifications which he believed would improve the fort's defensive capacity. These changes included completely reorganizing the north curtain, building look-out turrets in the salient angles of the bastions, repairing the loopholes and several embrasures, and building a masonry ditch, a drawbridge and a machicolation at the gate (Figs. 5; 50). Some the elements found during excavations are evidence of these changes.

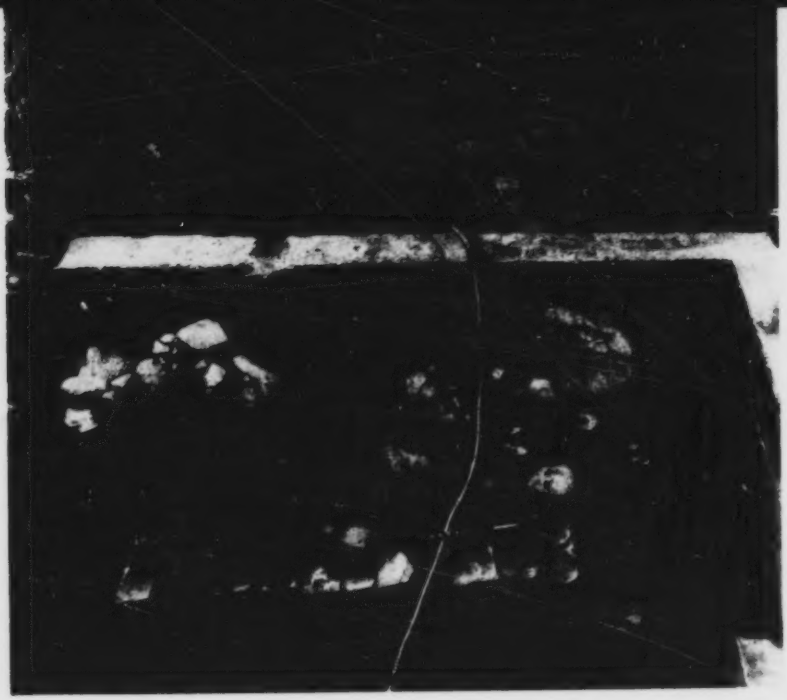
When Fort Saint-Frédéric was built in 1731, the French colony's defensive front shifted further south, and Fort Chambly was relegated to a position of secondary importance. Stripped of its cannons, Fort Chambly was no longer on the defensive forefront; it was used mainly for storing goods and, in time of war, as a refuge for the settlers and a rallying place for troops (Gélinas 1983: 55). From this time on, the fort underwent only minor changes, generally related to maintenance. There is archaeological evidence to show that the battery set up along the north curtain by Chaussegros de Lery some 15 years previously was replaced by a storage building at this time (Figs. 41; 50).

On the eve of the Seven Years' War, the north wing was restored to its original proportions and took on a defensive role again. The historic plan of 1750 (Fig. 10) shows vaults on piers that would allow cannons to be installed in front of the north curtain embrasures, while the gallery above was reduced to its former size.

This work shows that, although Fort Chambly's defensive status was affected by the construction of Fort Saint-Frédéric (1731) and Fort Saint-Jean (1748), it still had an important military role to fulfil, especially in this decisive period of the colony's history.

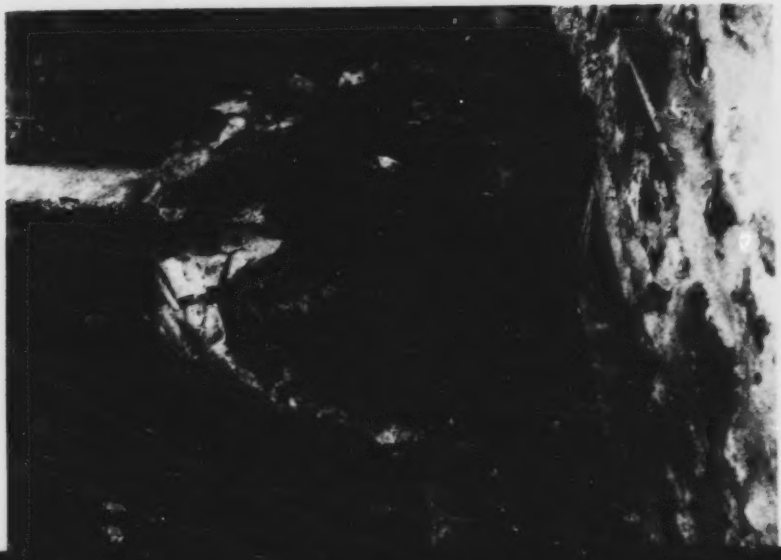


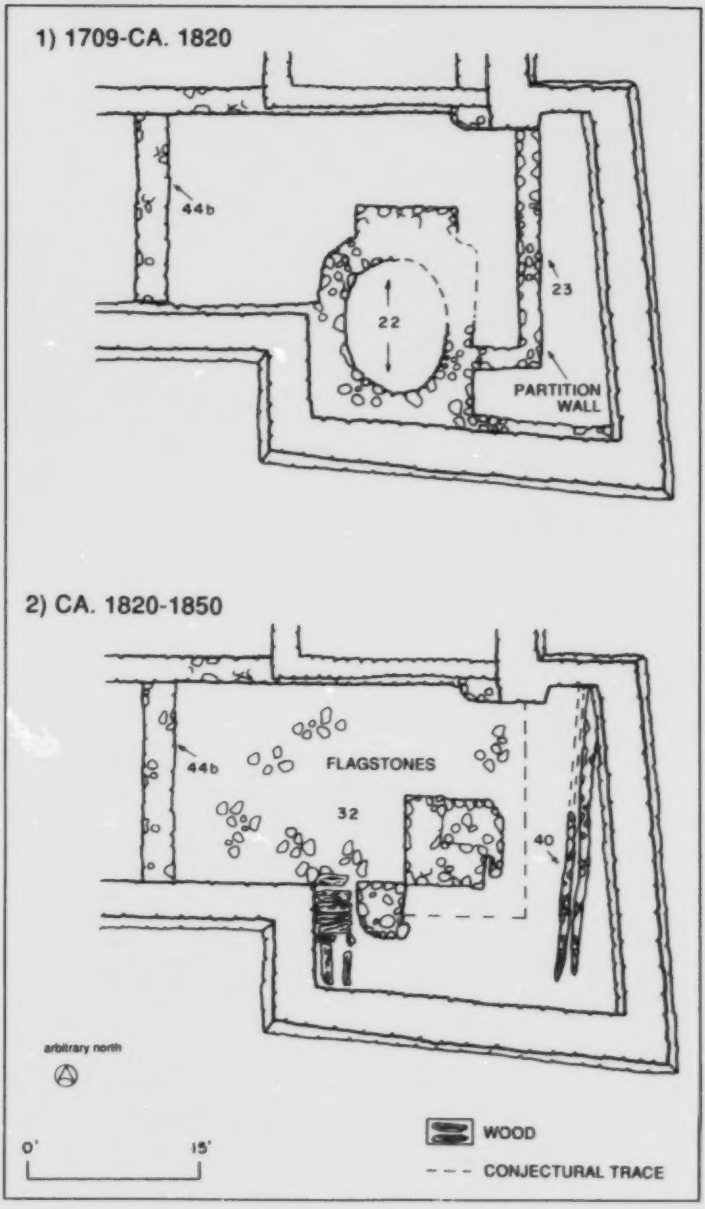
27 Southwest bastion of the stone fort, structural changes based on archaeological data.



28 Southwest bastion, stone foundations of the bake oven later converted into a forge hearth.

29 Well in the southwest bastion associated with the French occupation of the fort.

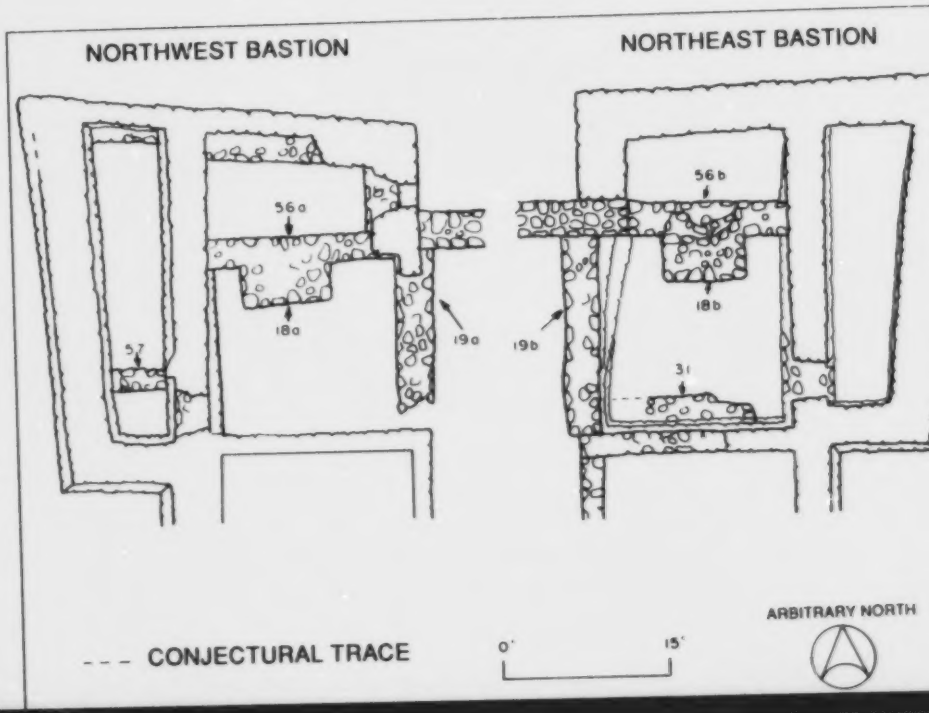




30 Southeast bastion, structural changes based on archaeological data.

31 Southeast bastion, partial view of the bake oven's stone foundations (in the background, to the right).

32 North bastion, excavated features.



Archaeological remains from the stone fort in the French regime

THE SOUTH BASTIONS

When the stone fort was built, the ground floors of both south bastions were laid out in a similar way. They both had a large bake oven (Fig. 27: Feature No. 42; Fig. 30: Feature No. 22) on one side of the main room, with partition walls creating a smaller second room (Fig. 27: Feature No. 41; Fig. 30: Feature No. 23). The remains found during excavations correspond closely with the layout for south bastions on historic plans (Figs. 7; 9). A well, which was discovered in the southwest bastion and which does not appear on any historic plan, is the only feature distinguishing the two structures.

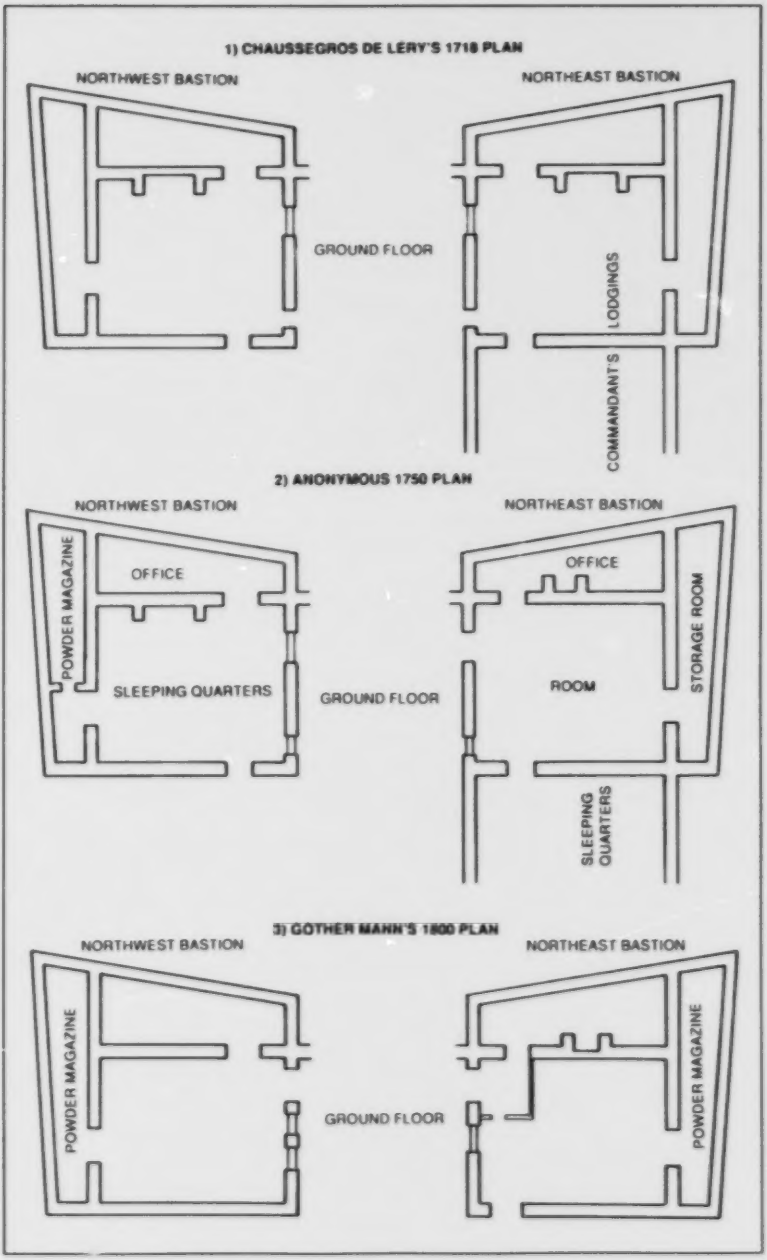
The ovens' fieldstone foundations are built into the bastions' substructure and the partition walls that separate the rooms. Excavation in the oven area revealed that they were oval in shape, but their hearths have not been discovered (Figs. 28; 31).

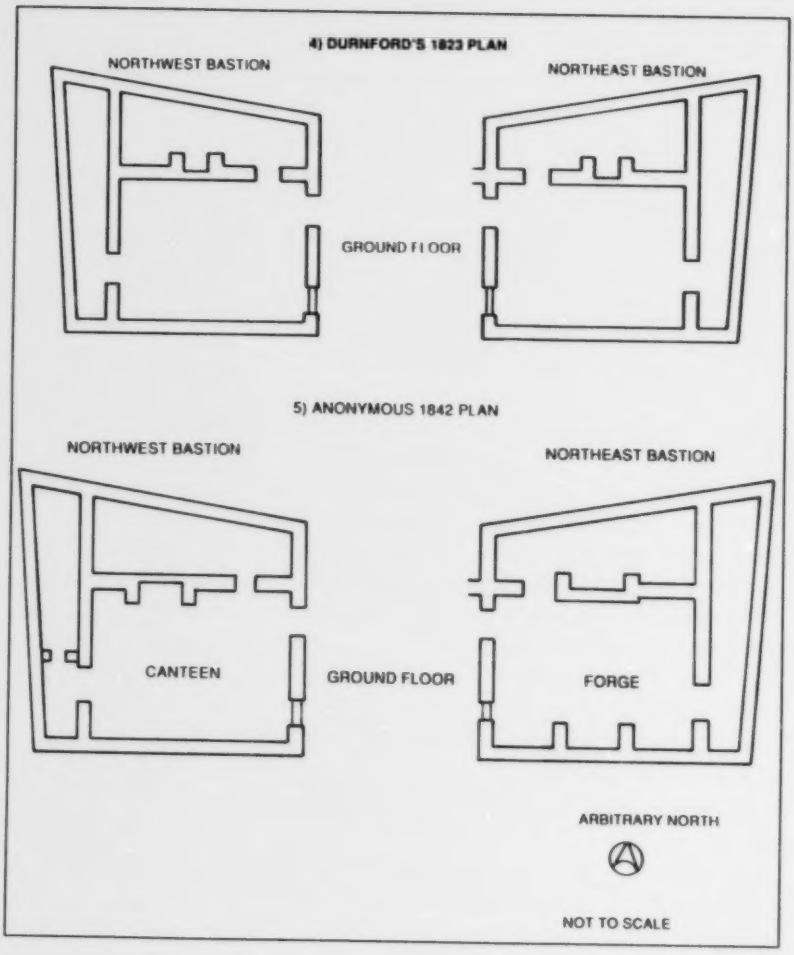
The well in the southwest bastion (Fig. 29) was built into the foundation of the west wing's southern wall. It's construction therefore is contemporary with the stone fort and the other architectural features discovered in this sector. Furthermore, the artifacts found above and below the course of flat stones lying on the well bottom date from the first half of the 18th century. The upper part of this small well, measuring only two feet across its inner diameter, was built of stone and mortar, while the lower part was constructed of dry masonry. The well had a depth of at least 10 feet below its lip, no trace of which has been found.

There is no archaeological evidence of major changes in this sector during the French regime. As will be seen, remains from the British period give a very different picture.

THE NORTH BASTIONS

The north bastions, like their southern counterparts, were originally both laid out in a similar way. Most of the remains discovered during excavations date from the stone fort's construction. They indicate that the ground floor of these bastions was divided into three rooms by partition walls (Fig. 32). The largest room was rectangular and had a fireplace, while the other, narrower, rooms had none. According to a drawing of the period,


1) CHAUSSEGROS DE LERY'S 1718 PLAN
NORTHWEST BASTION
NORTHEAST BASTION
GROUND FLOOR
LODGINGS
COMMANDANT'S
2) ANONYMOUS 1750 PLAN
NORTHWEST BASTION
NORTHEAST BASTION
POWDER MAGAZINE
OFFICE
SLEEPING QUARTERS
GROUND FLOOR
OFFICE
STORAGE ROOM
ROOM
SLEEPING QUARTERS
3) GOTHER MANN'S 1800 PLAN
NORTHWEST BASTION
NORTHEAST BASTION
POWDER MAGAZINE
GROUND FLOOR
POWDER MAGAZINE



33 North bastions, successive layouts based on historical data.

the ground floor of the northeast bastion was used as the commandant's lodgings in 1718; however, on a drawing made in 1750, these three rooms were identified as a "storeroom," "room" and "office" respectively (Fig. 33: Drawings No. 1, 2; Figs. 7; 10). There is less information about the use to which the northwest bastion was put during the French regime. Only the 1750 plan (Fig. 10) gives a few indications: the room with a fireplace was used as a bedroom, the north room served as an office and the east room was a powder magazine. All the remains lie beneath the floor level and are constructed of fieldstone and mortar. The ground excavated inside these bastions yielded very few artifacts related to the French occupation of the site.

THE SOUTH CURTAIN

In the French regime, the buildings along the south curtain, going from east to west, were: a chapel, its vestibule, a ramp for cannons (no trace of which has been found) and two rooms (Fig. 10). The remains of partition walls and fireplace bases match this description (Fig. 34: Drawing No. 1). The plans of 1718, 1734, 1738 and 1800 (Figs. 5; 7; 9; 11) also show a cellar in their section drawings. Beaucours mentioned such a cellar in his specifications: "The foundations of the inner walls will be only two and a half *pieds* at their widest, and will be as deep as those for the large walls, so that cellars of five *pieds* can be made under the beams" (National Archives of Canada, MG1, Dépôt des fortifications des colonies, no d'ordre 498, pièce 33, portef. 127, in Gélinas and Guitard-Fortin 1979).

The air vents, walls and cellar doorway discovered during excavation are associated with the occupation of the south curtain cellar. On the plan showing the remains (Fig. 34: Drawing No. 1), two main rooms can be distingushed on either side of the central area: one to the west, between the partition wall (Feature No. 44a) and wall No. 20d; and the other to the east, between partition wall No. 44b and wall No. 20g. The layout of these walls indicates that the west room connected with the central area, while the east room was isolated from the rest of the cellar. A chimney base was built against each of the partition walls at either end of this cellar (Features No. 45a, b). All of these remains date from the time of the fort's construction. They are solidly made and are built into the original foundations of the fort.

While the east and west sections of the cellars were open, the central room had small walls which apparently subdivided it into three adjoining rooms. The fill used for the cellar in this area was found to be very different

than that used in the east and west sections, and contained French artifacts only (Piédalue 1979: 41). This suggests that the central room was filled in before the British occupation. The reason for this, however, is unknown.

After the central part of the cellar was filled, the east and west sections continued to be used separately. In the west section, the remains of a cellar doorway facing the yard has been found (Fig. 34: Drawing No. 1, Feature No. 46), but it has not been possible to date it with certainty. However, it is very likely that the doorway was built at the same time as the fort and that it ceased to be used when this part of the cellar was filled during the British occupation.

THE WEST CURTAIN

The buildings standing against the west curtain at the time of the excavations had little in common with the work constructed by Beaucours. In the southern part of the west curtain, a building, later renovated to house administrative offices, was being used as lodgings by the fort's guardians and curators (Thibodeau 1979: 24; Fig. 54). The building had been erected for Joseph-Octave Dion in 1885; at that time there were no buildings in the northern part of the east curtain and only a few sections of the wall about the yard remained standing. In 1935, when the museum was constructed, a new basement was dug where the cellar had been during the French regime. The earth under the central section of the cellar has therefore been disturbed by water mains and hydro lines. Nevertheless, when the Dion building was demolished and excavation work was carried out along the west curtain, it was possible to identify a certain number of features which probably date from the time of the fort's construction (Fig. 36).

The first feature discovered in this sector was a chimney base that could have been used for the fireplaces on the ground floor and second floor (Fig. 36: Feature No. 47a). The presence of a large pit built into the foundation itself suggests that a hearth was constructed in the cellar when the fort was built (Fig. 37). Above this pit, an opening about 10 inches in diameter, was found in the stone wall. Its purpose remains unknown.

A small partition wall closed off the passage between the fireplace base and the enclosure wall (Fig. 36: Feature No. 47b); across from this, on the wall next to the yard, the remains of a jamb were found, indicating that a door could have controlled access to the south part of the cellar at one time (Feature No. 47c). Another discovery at the cellar level was an opening in the southern wall of the central room (Feature No. 49). This suggests that

an additional cellar was originally planned in this sector. As well, the plan made by Chaussegros de Lery *père* in 1718 (Fig. 5) shows that he intended to build a small opening, probably as an air vent, under the entrance. This opening would have connected with the masonry ditch of the drawbridge constructed by Chaussegros de Lery *père* between 1718 and 1720 (Fig, 36: Features No. 37a, b; Fig. 38). The ditch made in front of the gate was eight feet wide by eight feet deep, with a length of 24 feet.

The fill that was found throughout the entire cellar south of the central room was also present inside the chimney base. The absence of artifacts makes it difficult to determine when the cellars were filled. Stratigraphic data indicate that the cellar was abandoned and filled during the French regime. The layer of fill was found to be related to that used for the cellar behind the south curtain under the chapel vestibule (central room). Although this does not represent conclusive evidence, it is certain the French had good reason to abandon these cellars, for even today the sector is badly affected by flooding.

No trace of the mechanism that moved the drawbridge was found. Nor was any major feature discovered to the north of the central room, since a more recent concrete basement had been built in this spot.

THE EAST CURTAIN

The sector along the inside of the east curtain was not a very promising area for archaeological work, since it had been completely excavated some time after 1927. Despite this, monitoring of restoration work resulted in the discovery of a few structures that were still in place.

Two chimney bases were identified in the north part of the sector (Fig. 39: Features No. 54, 55). It is possible that they correspond to the two fireplaces appearing on Chaussegros de Lery's *père* 1718 plan (Fig. 5). The central base (Fig. 39: Feature No. 54) is built against the remains of what seems to have been a hearth (Feature No. 53) with an arched lintel. Although these two elements are connected today, they were not originally. When development work was undertaken on the site, the hearth (Feature No. 53) was already filled and its stones were joined with cement. The remains of a small arch belonging to another feature were also found next to the hearth (Feature No. 50). Its recess is deep enough to be a hearth or ashpit. However, the presence of a retaining wall (Feature No. 51) extending along the length of this complex makes it difficult to understand what it represented.

Apart from two other partition walls, which probably correspond to the building's inner walls, there is no other vestige of the south curtain that can be related to work done on the fort during the French regime. Nor are there any clues as to the activities of the officers and commandants in this period.

THE NORTH CURTAIN

Functionally and architecturally, the evolution of the north curtain is more complex than that of any of the fort's other sectors (Fig. 40). Designed primarily for defence, this sector also housed latrines and was used as a storage area. The north curtain was also affected by repeated efforts to protect the façade from the Richelieu's floods and ice floes, which could be as devastating as the fire of enemy guns.

The group of structures found in the sector of the north curtain constitute an excellent example of how densely remains can be concentrated in one place (Fig. 53). The sector contains features that date from before, during and after the building of the stone fort. For the sake of clarity, Figure 41 shows only those remains that correspond to developments affecting the curtain during the military occupation of the stone fort. The plan shows the position of two small structures (Fig. 42: Features No. 17a, b) at the cellar level, as well as the foundations of five walls lying at right-angles to the curtain wall (Features No. 26a, b, and 25a, b, c). Also appearing on the plan are two walls parallel to the enclosure (Features No. 24, 29) and the foundations of three buttresses (Features No. 30a, b, c).

Historical documents indicate some of the key periods for building activity in this sector. For example, it is known that the north curtain was originally fitted with embrasures and platforms for cannons, and that below ground level, there were only latrines on either side of a passage leading to a postern. The latrines and the postern are the sole elements found behind the north curtain wall that date from the time of the stone fort's construction (Fig. 42: Features No. 17a, b; Fig. 41: Drawing No. 1).

The latrines excavated were relatively complex. Made entirely of masonry, these structures included not only walls, floors and a pit, but also a drain that emptied into the river. A vertical duct was found to have been built into the thickness of the south wall, either to ventilate the pit or to allow it to be cleaned out from the yard (Fig. 41: Drawing No. 1, Fig. 43). Each of the latrines has a small recess which apparently was used as a shelf for a candle or lantern. There is also the base of a segmented vault in the masonry. The replacement of the walls at right-angles to the enclosure wall at the

beginning of the English occupation is closely related to the abandonment of the latrines (Fig. 42: Features No. 26a, b; Fig. 41: Drawing No. 5). The artifacts found in the soil filling the latrines suggest that these installations were abandoned and filled shortly after the arrival of the English.

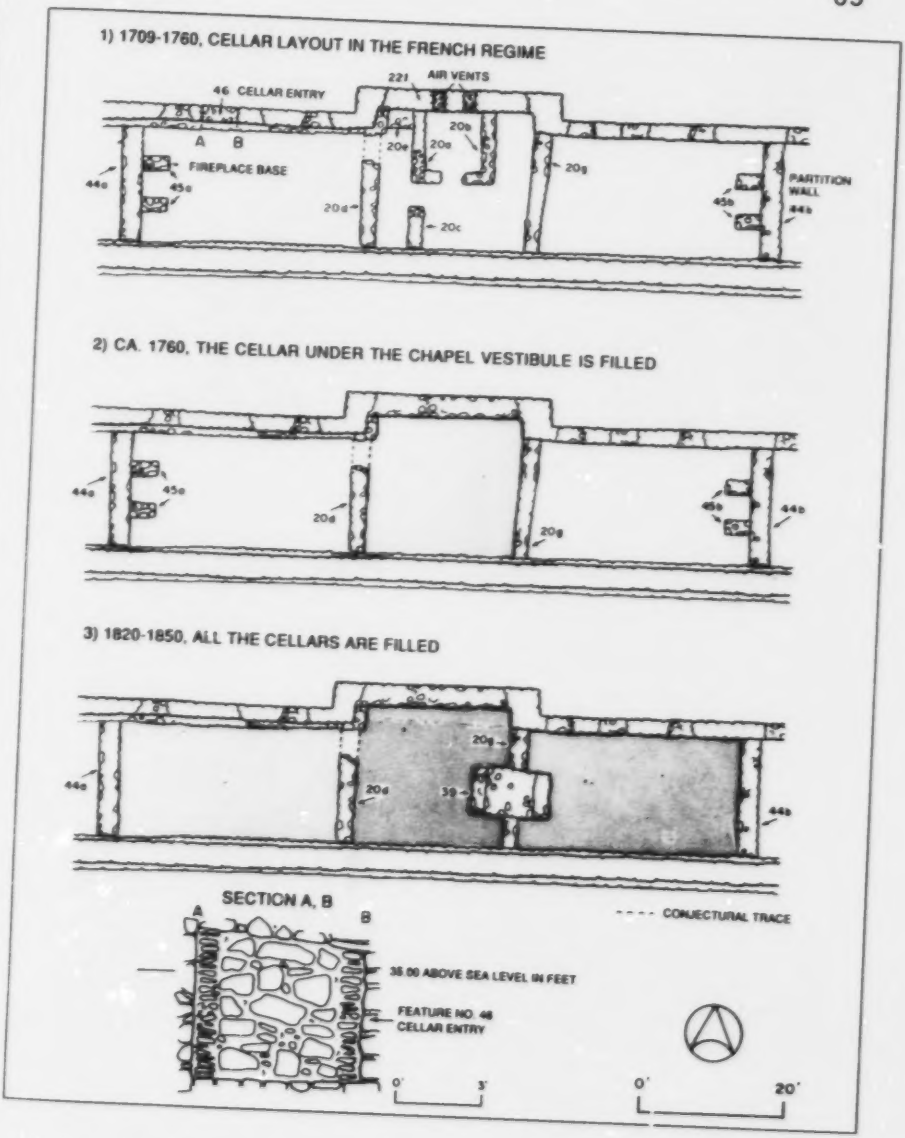
The renovations carried out by Chaussegros de Lery *père* on the north curtain in about 1720 did not greatly effect the ground. Consequently, there is no structural or stratigraphic evidence of the battery and firing gallery he had built in this location to improve the fort's defensive capacity (Fig. 6; Fig. 41: Drawing No. 2).

The plan drawn by Chaussegros de Lery *fils* in 1738 shows that certain changes were made to the north curtain between 1734 and 1738 (Fig. 9). According to the plan, the ground floor of the building along this curtain was enlarged, a series of low walls were built against the enclosure, and a new wall was raised along the yard to abut the firing gallery on the second floor. As will be seen further on, these modifications reflect an important change in the role played by Fort Chambly.

Archaeological remains from this period are represented by the foundation of the yard wall appearing on the 1738 plan. This substructure was exposed along almost the entire length of the curtain (Fig. 42: Feature No. 24; Fig. 41: Drawing No. 3). This foundation wall is shallow (two to 3.5 feet) and is made of dry masonry, unlike all the others associated with the stone fort. This suggests that it was intended to support a wooden superstructure. In any case, the work done between 1734 and 1738 had to be on a smaller scale than that carried out in 1720 since budgetary restrictions had been imposed on the fort at this time:

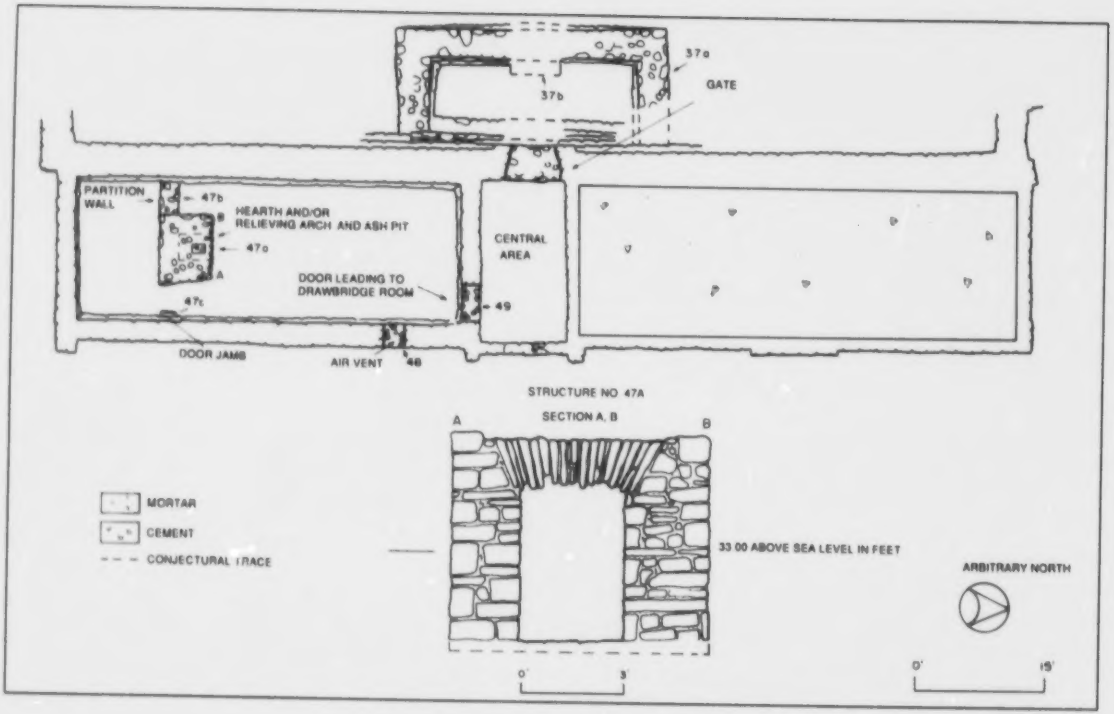
> *In 1735, disquieted by increasingly persistent rumours of war, the colonial authorities obtained permission from the Minister to strengthen the fortifications at Pointe-à-la- Chevelure, which were later renamed Fort Saint-Frédéric. As a result Chambly, which had until then been the most important fortification on the Richelieu, was suddenly relegated to secondary status. As it no longer had to carry the heavy responsibility of protecting New France from the south, Hocquart suggested to the Minister that its maintenance costs be cut by reducing the garrison to the strict minimum, namely, a subaltern officer, a sergeant and five or six soldiers* (Gélinas 1983: 38).

The last plan we have of Fort Chambly in the French regime indicates that the sector behind the north curtain was modified once again between 1738 and 1750 (Fig. 10). According to this plan, the yard wall built between 1734 and 1738 was dismantled and new structures were added. The cross



34 South curtain, structural changes based on archaeological data.

35 South curtain, hearth destroyed at the beginning of the 19th century (Feature No. 39).



36 West curtain, excavated features.

37 West curtain, chimney and fireplace base (?)

38 Masonry ditch of the drawbridge.

section and plan views of the sector show vaults supported by piers (Fig. 10). It is entirely possible that the walls found lying at right-angles to the north curtain (Fig. 42: Features No. 25a, b, c; Fig. 41: Drawing No. 4) are the bases of the piers associated with this third and final stage of the construction carried out during the French regime.

Life at the fort in the French regime

Little is known about the fabric of daily life at the stone fort during the French regime. The sources available to us are not much more forthcoming on the matter than they are about life in the wooden forts, many aspects of which went unrecorded. Some light has been shed on the subject by Gélinas and Miville-Deschênes. We do not intend to repeat their work in detail here, but we will offer a few general guidelines to help situate the reader in the context dealt with in this chapter.

TROOP STRENGTH

The garrison posted at Chambly during the French occupation of the stone fort resembled the wooden forts' garrison in both its numbers and the way its size fluctuated depending on the military situation. According to the documents available to us, the number of *Troupes franches de la marine* at the stone fort over the years corresponded to the figures presented in Table 3. As in the time of the wooden forts, the number of soldiers was supplemented by civilians (such as blacksmiths, dayworkers, locksmiths, masons, carters and laundresses) who provided many of the services required for the fort's maintenance and the garrison's well-being. In some cases, non-military personnel lived at the fort, but more frequently they went to work there only when they were needed.

ACTIVITIES

The activities of the men posted at the stone fort are hardly better known than those of the wooden fort's occupants. At the most, we can identify some of them and imagine what actions they entailed. Apart from the work done by the civilian employees, the soldiers' duties must have included all the tasks related to the fort's operation and defence, such as keeping watches and handling provisions. As well, it is known that the soldiers took part in building and keeping up the roads in the

Richelieu valley, and that they were sometimes assigned maintenance and cleaning work in the fort (Gélinas 1883: 52). There was always the job of cutting the wood needed for heating and cooking. The soldiers were also allowed to seek employment on the seigneurial farms, and several of them must have done so.

TABLE 3
Troops posted at the stone fort during the French regime

1711	about 100 men
1720	about 50 men
1741	30 men and 5 officers
1742	6 men, 1 officer and 1 sergeant
1746	5 men, 1 officer and 1 sergeant
1747	25 men
1751	41 soldiers, 1 captain, 1 lieutenant, 2 ensigns, 2 cadets, 2 sergeants, 3 corporals and 2 drummers
1754	15 men and 1 captain
1757	80 men
1759	20 men
1760	at the Conquest, 71 men were made prisoners.

(Miville-Deschênes 1987: taken from Table 7)

In the summer months, it was common for the soldiers to gather wild berries and various medicinal plants.

Some specific aspects of life behind the walls of the stone fort are clarified by the study of the archaeological remains and objects that have been found.

Compared with the wooden forts, the stone building provided the occupants with more comfort, safety and living space. Because troop strength was minimal, the number of soldiers housed by the stone fort was low in relation to its capacity (Miville-Deschênes 1987: 30). As well, the numerous chimney bases found at the cellar level indicate that the fort was well equipped for heating. There was even one year when the authorities

were prompted to complain about the amounts of wood required to fuel all these fires, most of which were used by the officers.

> *They have in this matter shown to you that too much wood is being consumed, and this greatly tires the soldiers of the garrison who are obliged to gather it. Eleven fires must be maintained, namely, three for the commandant, two for the guardroom, one for the chaplain, two for the Sieur de Bragelonne, lieutenant, one for the Sieur de Beaulac, ensign, and one for the Sieur de Montcour, also an ensign* (Longueuil and Bégon in Gélinas 1983: 50).

Many historical documents contain references to cast-iron stoves being used to supplement or replace open fires as a means of heating (See Miville-Deschênes 1987: 43-44).

An analysis of the 303 objects associated with the stone fort shows that their functional distribution (Table 4) is very similar to that for the two wooden forts (Table 2). According to this analysis, one function dominates: consumption. Most of the artifacts related to the stone fort during the French regime, like those from the preceding forts, are evidence of activities connected with eating and drinking. Work on materials is represented to a lesser degree; this category is represented by a spade, three axes, some pins and half a pair of scissors of undetermined use (Miville-Deschênes 1987: 40-41). With respect to hygiene and personal care, there are of course the latrines, as well as a few chamber pot shards. Medication is represented by some phials which might have contained medicinal products (Miville-Deschênes 1987: 76-77). If the garrison engaged in any leisure activities, the objects give no clues as to what they might have been. On the basis of the artifacts, the soldiers at Chambly had little to do for their entertainment save eating, drinking and smoking the occasional pipe ....

The lack of archaeological information about work and leisure at Chambly does not mean that the men posted at Chambly lived in total idleness. Miville-Deschênes' 1987 study of domestic life at the stone fort during the French regime presents many facts taken from historical documents.

More is known about eating habits than other aspects of fort life, not only because of the relative abundance of objects related to food, but also primarily because of the wealth of zooarchaeological evidence.

TABLE 4
The stone fort: distribution of objects (303) according to function (percentage)

FUNCTIONS	OBJECTS (%)
Work on materials	7.63
Acquisition	1.32
Consumption	
Food	59.80
Narcotics	11.96
Medication	1.33
Clothing	2.00
Personal Care	1.33
Construction	0.33
Undetermined	10.30
Total	87.05
Social and ideological objects	0.66
Undetermined	3.32

(Based on Miville-Deschênes 1987: 16)

The objects related to food are generally plain, multi-purpose wares, but the material of which they are made varies greatly depending on the styles and markets of the period. Most of the fragments found attest to activities such as preparing, cooking and eating food. A few large coarse earthenware recepticles can be related to food preparation, while cooking is represented by some pots, a brown tin-glazed earthenware cover and some containers made of cast iron and cupreous metal. Not suprisingly, no spits for cooking over a live fire were found. The category of consumption accounts for more than half of the collection of objects associated with the

French occupation of the stone fort. Apart from some cutlery, these objects consist of containers of undetermined use, serving dishes and tableware, including several plates, bowls and a few drinking glasses (Miville-Deschênes 1987: 55).

The identification of the bone remains discovered in the relevant contexts suggests that the soldiers posted at the stone fort generally ate the same species of animals as had their predecessors. The great majority of mammals, birds and fish identified in the French contexts of the stone fort are also represented in the contexts of at least one of the previous wooden forts (Appendix A). With the exception of one context associated with the very end of the French occupation of the stone fort, the proportion of wild species remains high.

The following wild mammals were found, presented here in decreasing order according to the number of elements identified: moose, muskrat, beaver, red squirrel, bear, rat, marten, white-tailed deer and snowshoe hare. The corresponding list for domestic animals, which account for more than 60 percent of the mammal bones found, is: pig, cow, sheep or goat and cat. Several of these animals may be used for purposes other than food and probably the soldiers at Fort Chambly did not waste such resources. Certain species must have been valued for their hide and fur as much as for their meat.

The bird species for which the most elements were found is the chicken. However, a dozen or so wild bird species together represent the greatest number of individuals. Such species include the common raven, snowy owl, goose, black or mallard duck, passenger pigeon, red-tailed hawk and bald eagle, to name but a few of the species that graced the soldiers' plates.

The soldiers at the stone fort also knew how to fish. More than a dozen fresh water fish species have been identified from this period. Channel catfish, with its firm and delicious white meat, seems to have been the most popular fish, or perhaps it was simply the most easily caught. Other species, listed in decreasing order of occurrence, are: sturgeon, various species of suckers, walleye, longnose gar, yellow perch, bass and freshwater drum. It is not very likely, in view of the small size and fragility of these skeletal remains, that the above list of fish is a complete one, or even that the order in which they are presented truly reflects the importance each had in the garrison's diet. But, it is clear that nearby streams and rivers supplied a large proportion of the food eaten by the men at the fort.

Before returning to dry land, we should add a few details about another group of aquatic animals, the mollusks. The small number of calcareous shells found suggests that these invertebrates did not play a very important role in the diet of the French garrisons in any of three forts built at Chambly (Walker and Cumbaa 1982: Appendix H). The shells of freshwater mussels, oysters and common northern whelk turn up occasionally, but in such small quantities that these tiny animals must have either been difficult to obtain or did not appeal to the garrison's taste.... The remains of one bullfrog was found as well, along with those of three different species of turtles.

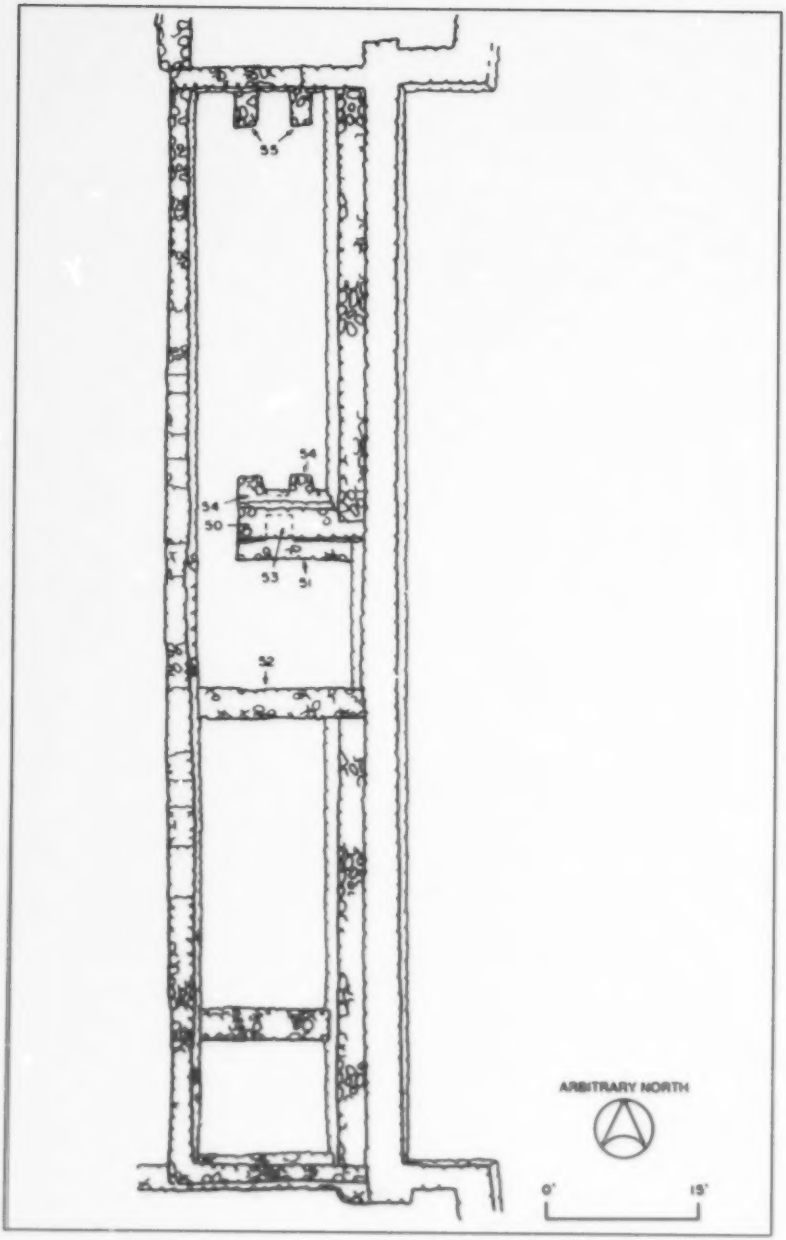
Less than 10 percent of the bone remains associated with the French occupation of the stone fort (excluding the contents of the latrines) display cut marks (Walker and Cumbaa 1982: 60). The great majority of these marks occur on the bones of wild and domestic mammals. The remainder appear on a few bones of birds and fish, as well as on parts of an eastern spiny softshell turtle. As in the case of the wooden forts, almost all the cut marks were made by knives, cleavers or other such tools. The ilium of a cow is the only element bearing the marks of a saw, a tool which began to be widely used at the end of the 18th century. Elements from all parts of the wild and domestic mammals are present, indicating that the butchering was done on the site. However, the marks show that the meat was not always cut into "individual" portions.

On the basis of their origin, the objects found in the latrines along the north curtain (Lots 16G8A32, 16G8A43 and 16G8A36) might equally well have been thrown there at the very end of the French regime or shortly after the English captured the fort. According to the archaeologist in charge of the excavation, the latrines were probably filled by the English when the sector was reorganized (Piédalue: pers. comm.). The bone remains in this area appear at first glance to reflect a sudden and profound change in the eating habits of the fort's occupants.

The bones found in the latrines strongly suggest that wild animals were almost entirely replaced by domestic species as a source of food at the end of the French regime or at the beginning of the English occupation. Domestic mammals and birds alone account for more than 70 percent of the 879 bones identified in the latrines (Appendix B). Fish, representing more than 25 percent of the elements found, are the only wild species that counter this trend.

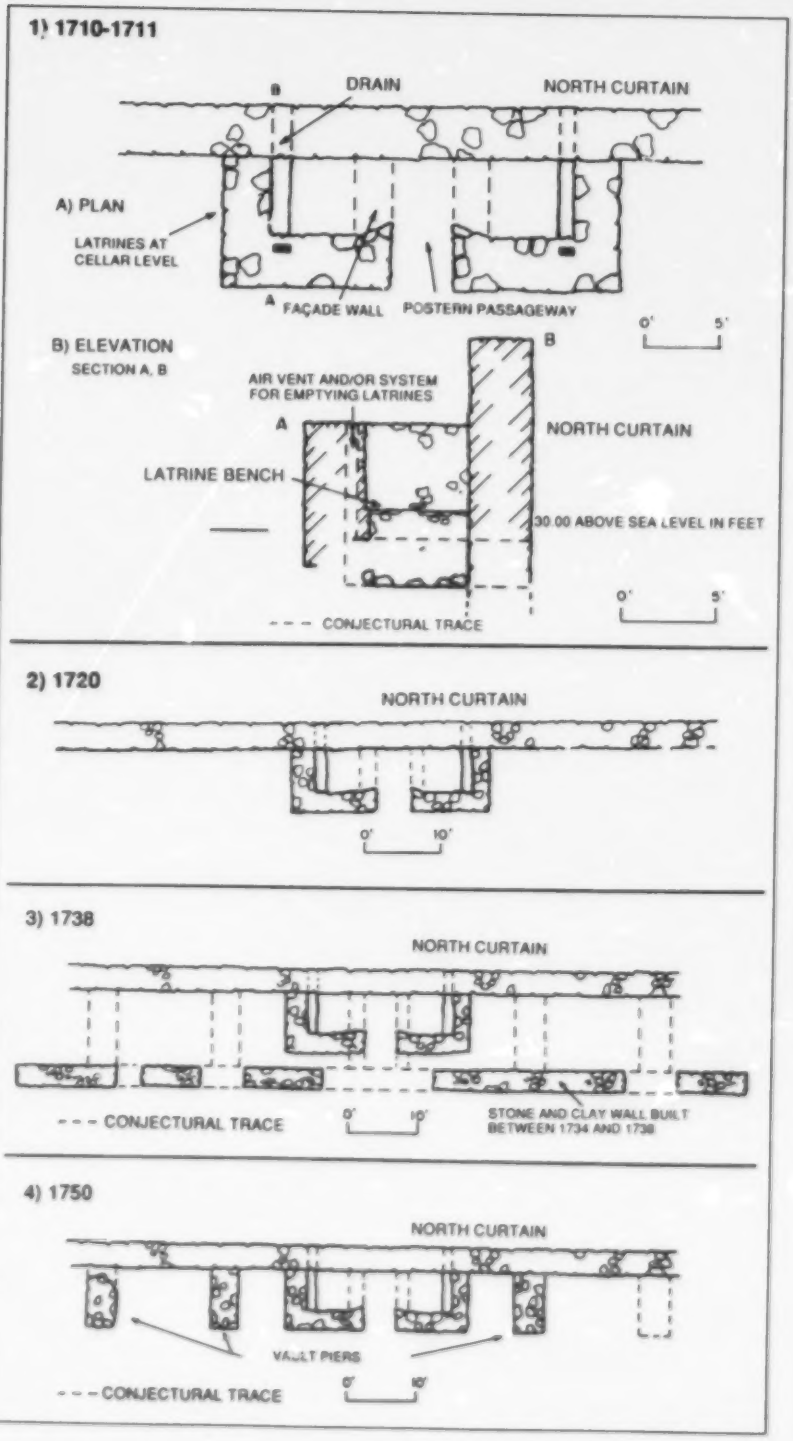
What was the reason for this sudden drop in the proportion of wild food eaten by the fort's occupants? We believe that it was a passing state of

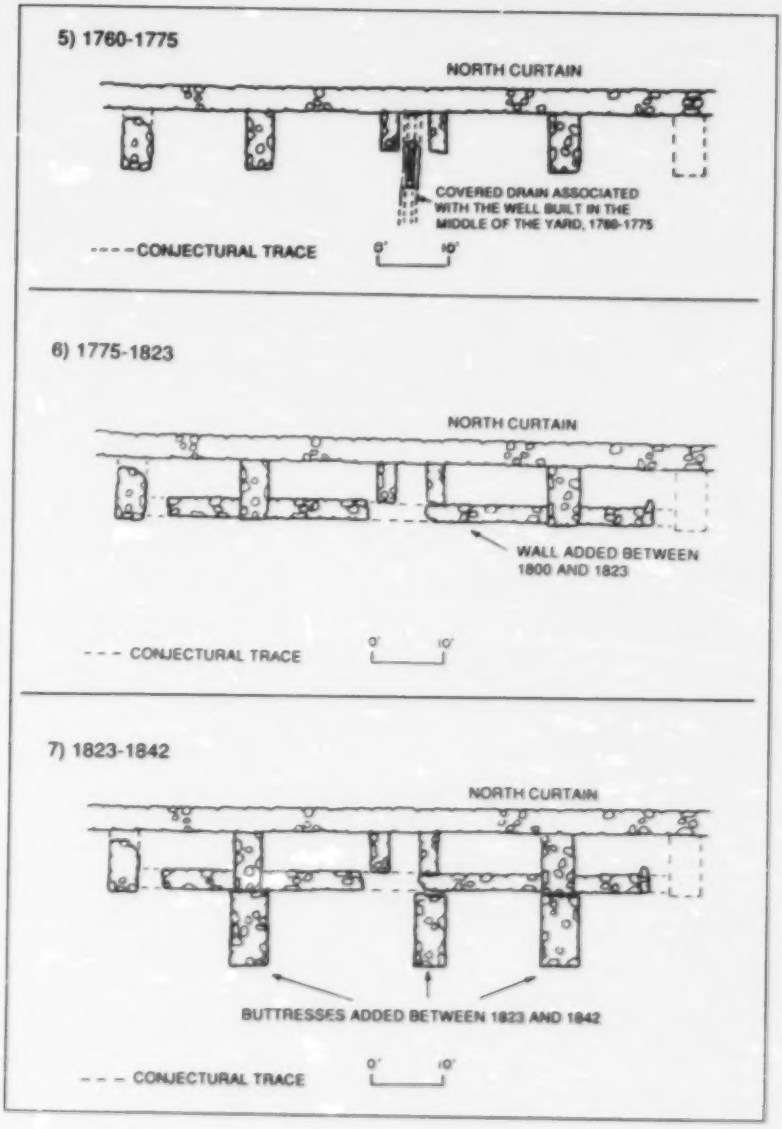
affairs, related to the armed conflict disturbing the Richelieu valley at the time, rather than to cultural or ecological factors. Unfortunately, the absence of zooarchaeological studies for subsequent contexts makes it impossible to explore this hypothesis.



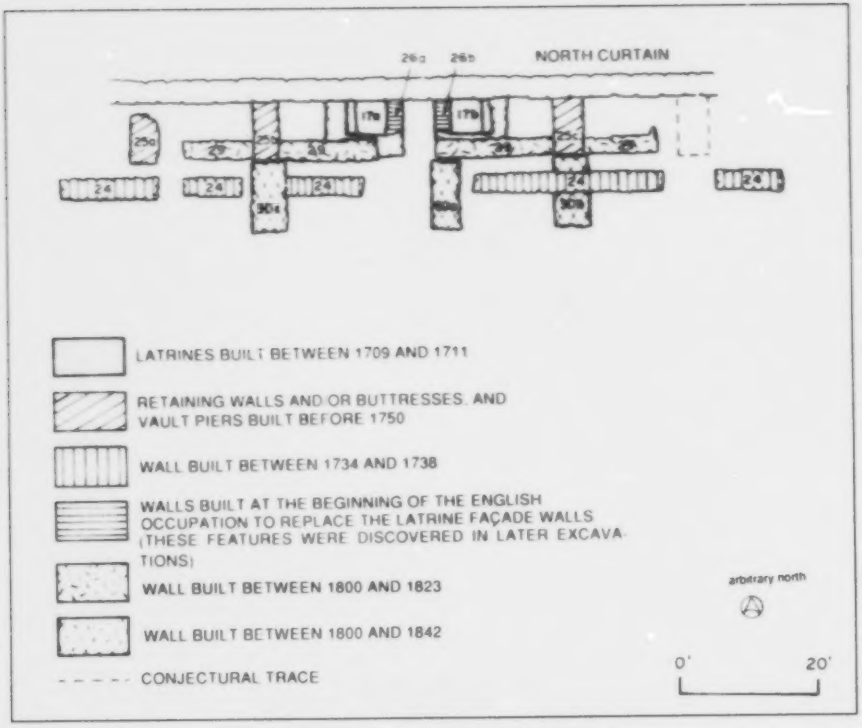
39 East curtain, excavated features.

40 General view of the north curtain before excavations.


1) 1710-1711
B
DRAIN
NORTH CURTAIN
A) PLAN
LATRINES AT CELLAR LEVEL
A
FAÇADE WALL
POSTERN PASSAGEWAY
0'
5'
B) ELEVATION
SECTION A, B
AIR VENT AND/OR SYSTEM FOR EMPTYING LATRINES
A
B
NORTH CURTAIN
LATRINE BENCH
30.00 ABOVE SEA LEVEL IN FEET
0'
5'
CONJECTURAL TRACE
2) 1720
NORTH CURTAIN
0'
10'
3) 1738
NORTH CURTAIN
CONJECTURAL TRACE
0'
10'
STONE AND CLAY WALL BUILT BETWEEN 1734 AND 1738
4) 1750
NORTH CURTAIN
VAULT PIERS
CONJECTURAL TRACE
0'
10'



41 North curtain, structural changes based on historical and archaeological data.


NORTH CURTAIN
LATRINES BUILT BETWEEN 1709 AND 1711
RETAINING WALLS AND OR BUTTRESSES, AND VAULT PIERS BUILT BEFORE 1750
WALL BUILT BETWEEN 1734 AND 1738
WALLS BUILT AT THE BEGINNING OF THE ENGLISH OCCUPATION TO REPLACE THE LATRINE FAÇADE WALLS (THESE FEATURES WERE DISCOVERED IN LATER EXCAVATIONS)
WALL BUILT BETWEEN 1800 AND 1823
WALL BUILT BETWEEN 1800 AND 1842
CONJECTURAL TRACE
arbitrary north
0'
20'

42 North curtain, excavated features.

43 North curtain, west latrines (facing south). Note the drain at the bottom of the ditch, the ridge of the bench and the recess in the wall .

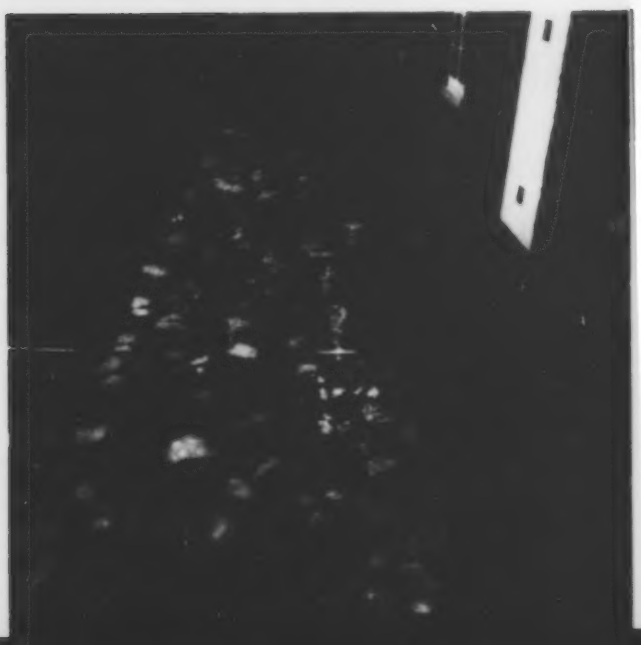
44 North curtain, mouth and portion of the drain used to draw off overflow from the well dug in the middle of the yard in about 1760.

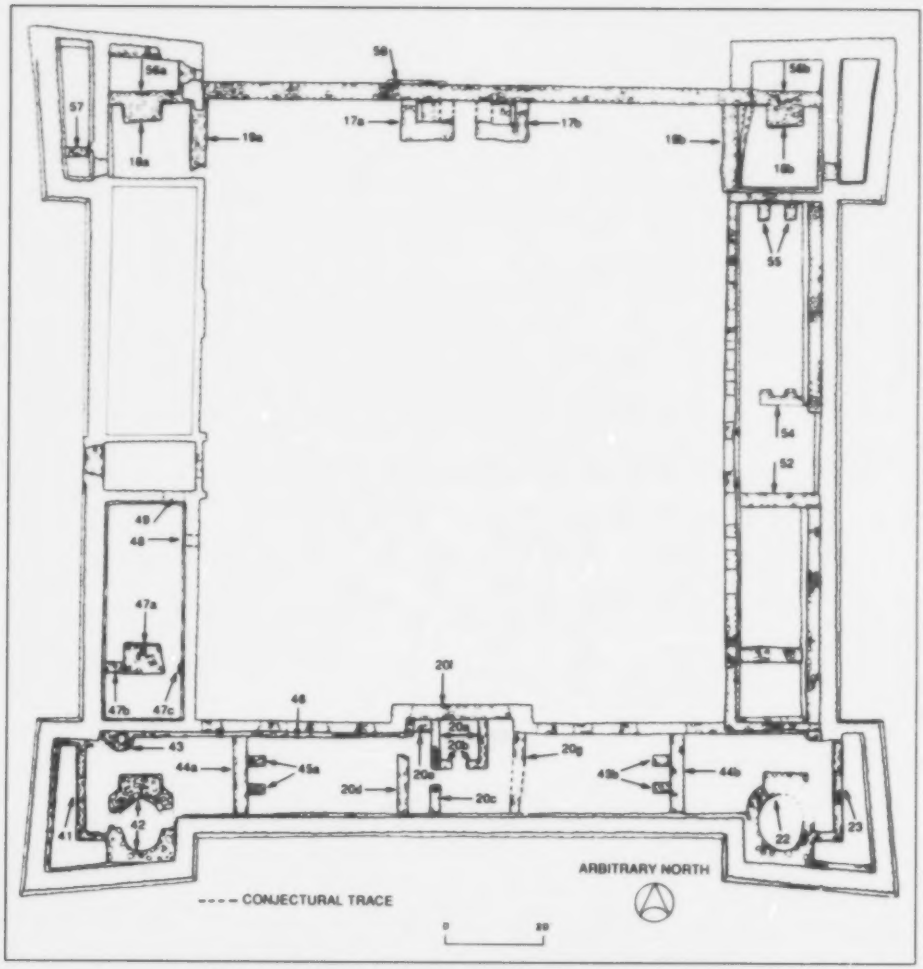
45 North curtain, overall view of the excavated features.

46 Yard, bird's-eye view of the well and its drain.

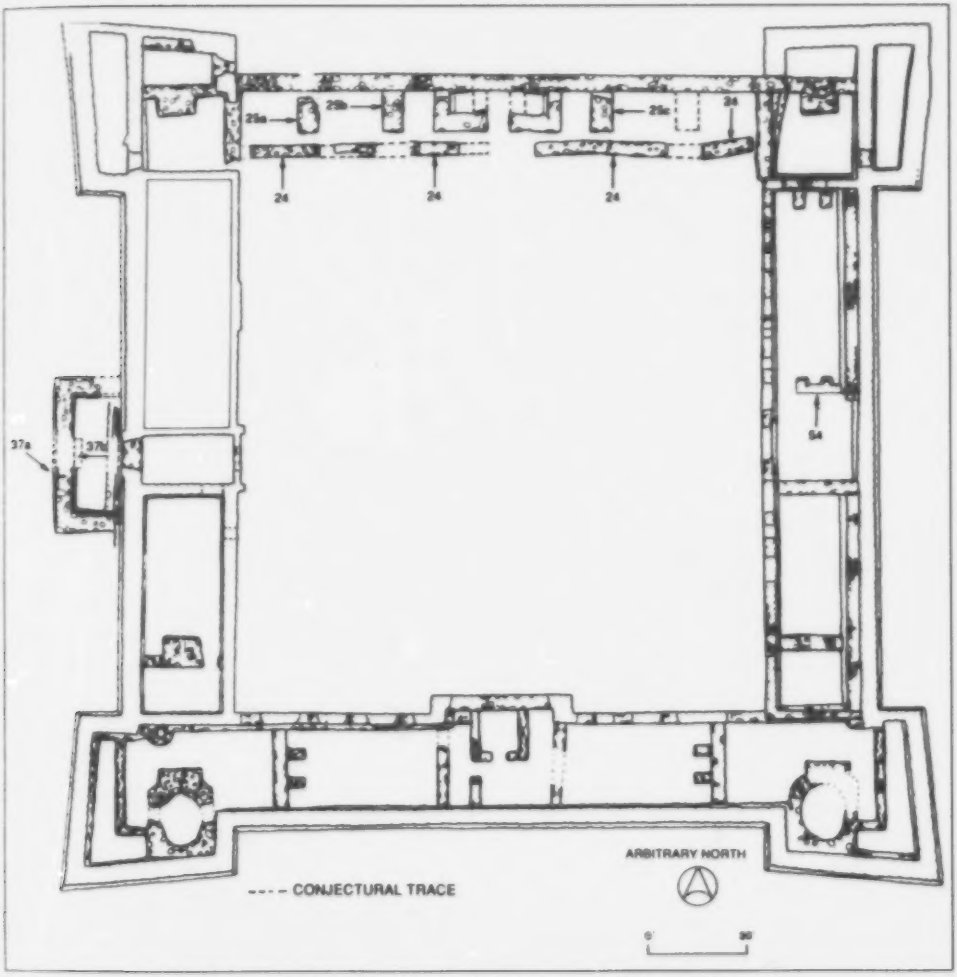
47 Yard, west sector, sidewalk built around the yard's perimeter at the beginning of the 19th century.

48 Yard, east sector, sidewalk.





49 Overall view of the features dating from the construction of the stone fort (1709-11).



50 Overall view of buildings added between 1718 and 1760.

THE STONE FORT IN ENGLISH HANDS

Fort Chambly fell in 1760, before its ramparts had been touched by enemy fire. Inside, the besiegers discovered some 150 people, both military and civilian. They also found and seized a considerable amount of provisions and several pieces of artillery (Gélinas 1983: 45). The English were there to stay, and a garrison, whose size varied depending the circumstances, was maintained at the fort until 1851. It was only about 20 years later, in 1869, that Beaucours' fortification lost its military vocation forever.

The English left much tangible evidence of their long occupation. This evidence is related both to the reorganization of the fort and changes in the way its parts were used. For the sake of clarity, information on the English occupation will be presented in the order used for the previous chapter. However, living conditions at the fort during this period will not be discussed, since this aspect has not yet been developed in studies of archaeological evidence. The only document that deals with this question is "Fort Chambly, dossier sur les objets archéologiques des occupations britannique et post-militaire (1760-1940)" written by François Miville-Deschênes (1985). Although this report does not make a detailed analysis of material culture during British rule, it points out certain differences and similarities in comparison with the French occupation of the site.

Archaeological evidence from the stone fort during British rule

THE SOUTH BASTIONS

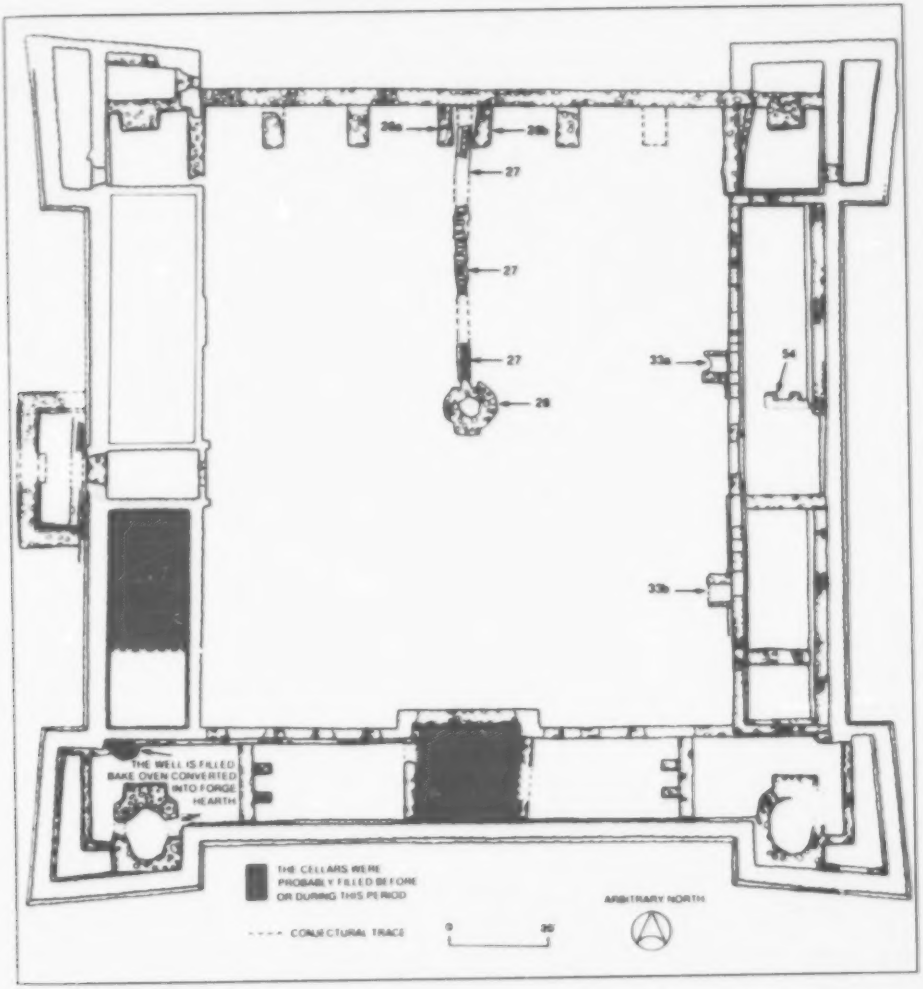
During the French regime, the two south bastions had a similar function, both of them being used for cooking food (Fig. 50). However, as soon as the British settled in, the hammering of iron replaced the kneading of bread as the principal activity carried out in the southwest bastion (Fig. 51).

The first plan that shows the changes made to the southwest bastion, as well as other parts of the fort, dates from 1800 (Fig. 11). The words "Forge & 1 Oven" appear where "Boulangerie" was regularly found on French plans. According to archaeological data, the forge was set up in the southwest bastion in the last quarter of the 18th century. The clearest evidence for this change is constituted by the numerous metallurgical and domestic artifacts found in the bastion's well. The well yielded quantities of slag, scale, charcoal, ash, scrap and iron objects. These remains lead us to believe that the small forge was used mostly for making nails and other building hardware, as well as for repairing various iron objects that were useful or necessary for running the fort (Boivin 1981: 10 and 11). There are no archaeological clues to let us know how the southwest bastion was used after this type of work on materials ceased.

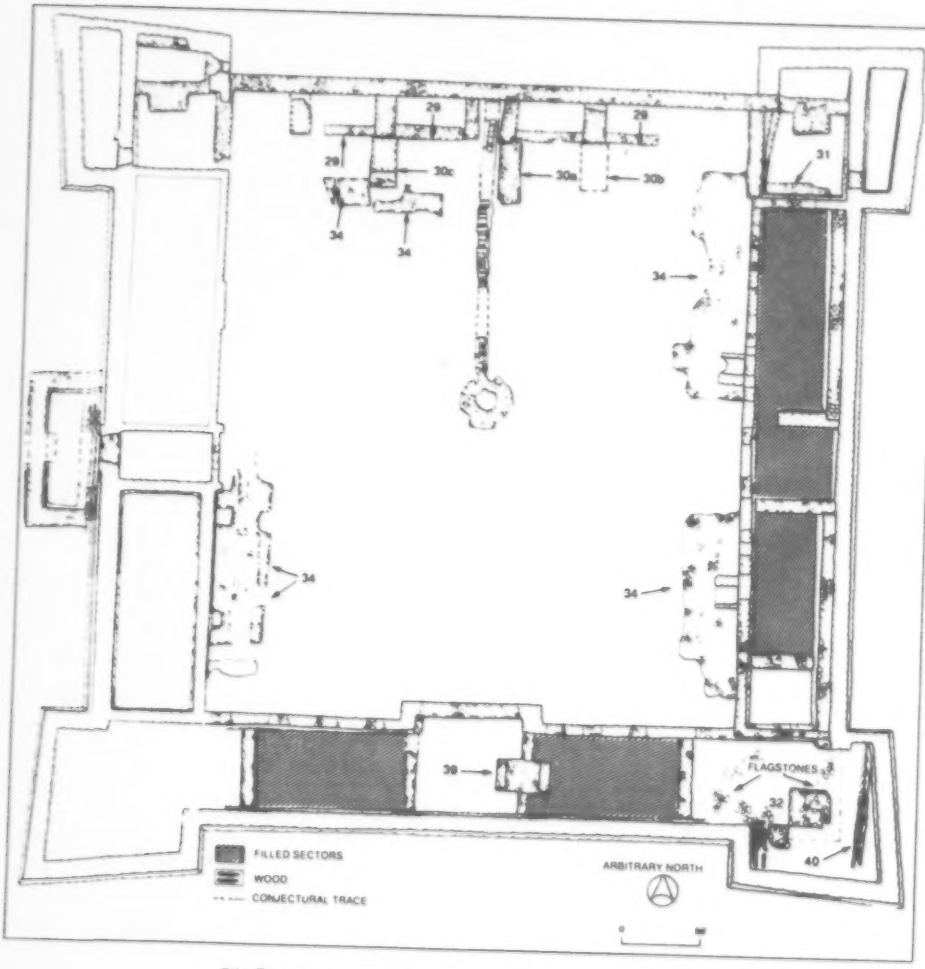
With respect to the southeast bastion, drawings and plans from the time of the English occupation show that there were more changes than the archaeological remains would lead us to believe. While these remains attest to only one major change (Fig. 30), the plans drawn between 1800 and 1842 indicate that in this area there were at first four ovens, then a single oven and finally, a "potager" with four fireboxes (Fig. 11, 13, 14). The term "potager" refers to a type of masonry stove used for preparing and simmering stews and soups. As well, the bastion's function changed slightly, since it went from being called the "bake house" in 1800 to being the "cook house" in 1842.

Archaeological data has enabled us to determine that the superstructure of the old French oven was levelled some time before or during the first quarter of the 19th century. However, we do not know what replaced the oven after it was demolished. The remains of a floor consisting of wood and flat stones were found here and there to the west of the partition wall. This floor seems to represent a level of occupation dating from the time of the "potager" with four fireboxes, which appears on the 1842 plan, and which was identified among the archaeological remains.

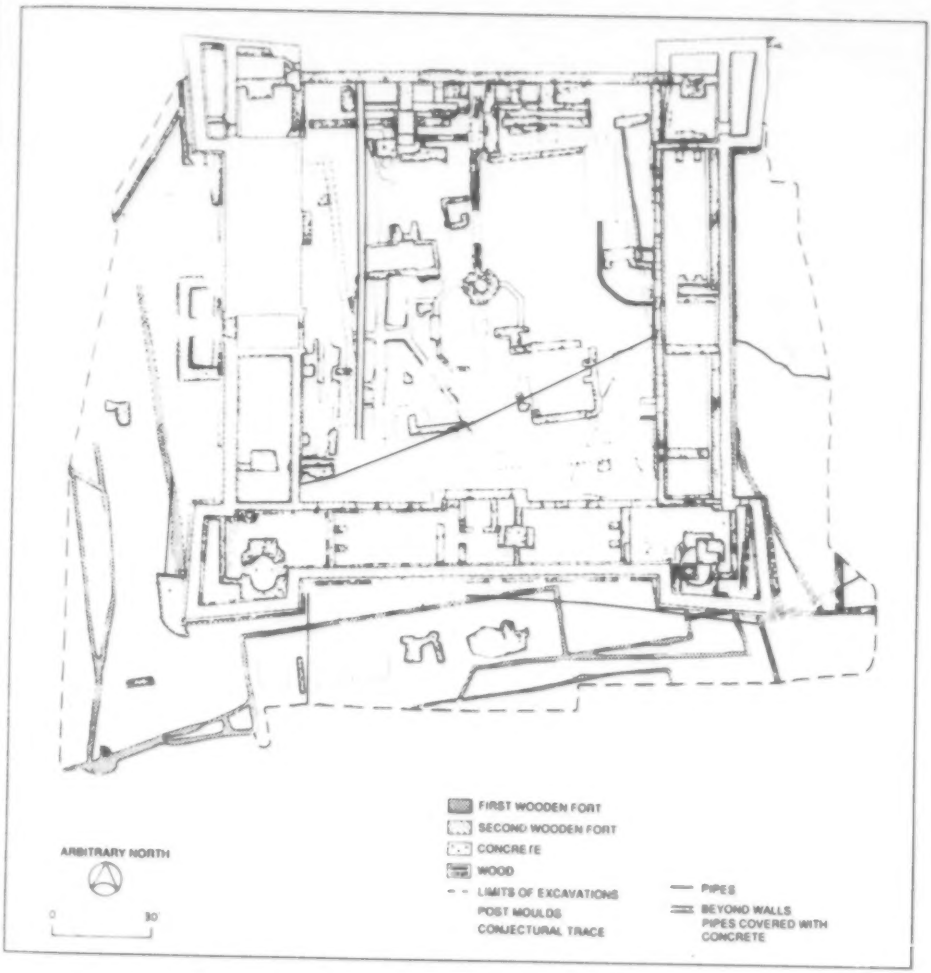
The superstructure of the partition wall in the southeast bastion, which had stood there since the fort had been built, was also levelled between 1832 and 1842. A small drain discovered immediately to the east of the remaining section of the partition wall (Fig. 30: Feature No. 40) is believed, because of its stratigraphy, to have been constructed at the same time as the "potager" (Piédalue 1979: 79).



51 English occupation, structural changes, 1760-75.



52 English occupation, structural evolution, 1775-1850.



53 Overall view of features excavated between 1976 and 1981.

THE NORTH BASTIONS

Archaeological excavation revealed only a few traces of the changes made by the British to the ground floors of the north bastions. There seems to have been little in the way of new construction, and the layouts of the two bastions remained virtually as they had been during the French regime (Fig. 33). However, the historic plans show that the names and functions of the rooms were changed over the years and that fireplaces came and went on both sides of the east-west partition walls. The only architectural element that attests to new construction is a limestone and mortar base built against the south partition wall of the northeast bastion (Fig. 32: Feature 31). This may be the remains of a hearth used by the blacksmith that is indicated at this spot on the 1842 plan (Fig. 14).

An impressive concentration of fragments was discovered in the powder magazine in the northeast bastion. These artifacts include several shards of bottle glass, pearlware and refined white earthenware, as well as more than 20 kilograms of animal bones. Unfortunately, neither the artifacts nor the bone remains from this deposit have been analyzed so far.

THE SOUTH CURTAIN

In 1800, the building standing against the south curtain was no longer used as it had been during the French regime. On the plan made by Duberger (Fig. 11), the central part of the ground floor is designated as a storehouse, while the east and west parts are identified as men's barracks. The 1842 plan shows little change in the sector's use.

The artifacts found in the east and west areas of the cellar show that these rooms were abandoned and filled during the first half of the 19th century (Fig. 34: Drawing No. 3). At about the same time, the chimney standing at the eastern end of the building was demolished and that at the western end apparently ceased to be used. These changes are evidenced by the many stones and pieces of mortar found mixed with the cellar's fill in the area directly in front of the chimneys. The fort's occupants did more than demolish and fill in, however. There are still traces of the double fireplace that was built in the middle of this building between 1823 and 1842 (Fig. 34: Drawing No. 3, Feature No. 39; Fig. 35). The layer of soil covering the cellar fill in this sector contained a wealth of domestic artifacts, including several complete objects dating from the second half of the 19th century.

THE WEST CURTAIN

In the chapter on the stone fort during the French regime, it was seen that the buildings standing against the west curtain after 1885 were entirely unrelated to the site's military function. From an archaeological viewpoint, very little remains of the work done in the area by the English. Archaeological monitoring of work in the west curtain sector revealed no traces of the rooms designated as the "Men's room" in 1800 and "Deftrs room," "Guard room," "Porch," "Staff" and "Men's room No. 2" in 1842 (Figs. 11; 14). The only feature that can be associated with the English occupation is the fill in the masonry ditch, since it contains artifacts from this period.

THE EAST CURTAIN

The archaeological remains of the building which stood against the east curtain are few in number and difficult to interpret. Although this sector of the fort was considerably disturbed by work done in the 20th century, it nonetheless holds what may be some vestiges of the English occupation. These traces consist of masonry structures standing against the chimney, which was built in the French regime, near the centre of the building (Fig. 39: Feature No. 54 for the French chimney, and Features No. 50, 51 for the English masonry). There are also structures that appear to have been light wells attached to the yard wall (Fig. 51: Features No. 33a, b). While it is not entirely clear that the masonry elements next to the chimney were built by the English, the light wells may be dated with more certainty. They are filled with soil that contains almost no ceramic from before 1760 and were found under the foundations of a sidewalk constructed in the second quarter of the 19th century. This implies that the light wells were built after the fort changed hands and that they were filled before the sidewalk around the yard was made.

THE NORTH CURTAIN

The changes made to the north curtain at the beginning of the English occupation left traces which are easily distinguished. The latrines were abandoned and filled between 1760 and 1775; at the same time, the postern jambs were dismantled and replaced by two new walls (Fig. 42: Features No. 26a, b; Fig. 41: Drawing No. 5). It is also likely that repairs were made to the piers standing behind the north curtain and to the inner surface of the curtain foundation (Fig. 42: Feature No. 25a, b, c; Piédalue 1979: 57).

The old postern passageway was found to contain the remains of a drain used to discharge the overflow from a well built in the yard in about 1760 (Fig. 41: Drawing No. 5). Its northern end goes through the curtain where the threshold of Beaucours' postern door is thought to have been (Fig. 44).

According to the historic plans (Fig. 11; 13), a yard wall linking the piers was built between 1800 and 1823. Several sections of this wall have been found (Fig. 42: Feature No. 29; Fig. 41: Drawing No. 6).

> *When this wall was constructed, the archways opening onto the yard were filled in to make a continuous wall with doorways. This change was intended to reinforce the rear vaults, which still appeared on Durnford's plan* (Piédalue 1979: 67).

This wall represented a further impediment to the use of artillery along the north curtain and was concrete evidence of the battery sector's changed role. It will be remembered that, during this period, the fort was used as a service centre to meet the needs of the military camp set up between 1812 and 1814. Three buttresses (Fig. 42: Features No. 30a, b, c; Fig. 41: Drawing No. 7) were built against the new wall between 1823 and 1842 (Figs. 13; 14) to support and strengthen the buildings behind it (Piédalue 1979: 71).

THE YARD

During the French regime, there were no buildings in the stone fort's yard. The English, however, built a sidewalk around it and dug a well in the middle.

The first plan we have from the English period (Fig. 11) shows a well in the centre of the yard (Fig. 51: Feature No. 28; Fig. 46). This fieldstone structure was probably built about the same time that the well in the southwest bastion was abandoned, shortly after the British takeover. The artifacts found in it suggest that it was abandoned at the beginning of the 20th century. A drain used to empty the well's overflow into the river was also partially excavated (Fig. 46; 51: Feature No. 27). This drain seems to have been filled near the well in about 1870 (Piédalue 1979: 63).

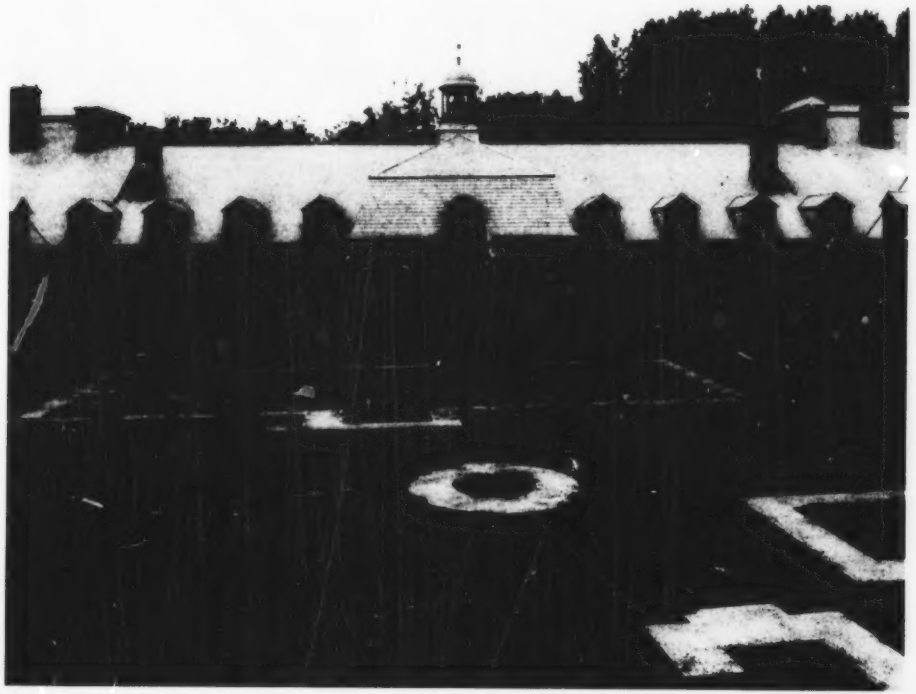
The remains of the sidewalk were found along the east, west and north sides of the yard (Figs. 47; 48; 52: Feature No. 34). This walkway was installed in the second quarter of the 19th century and, according to archaeological data, it consisted of a stone foundation over which wooden planks or beams were nailed.

54 House built by Joseph-Octave Dion, west curtain, photographed in 1929.

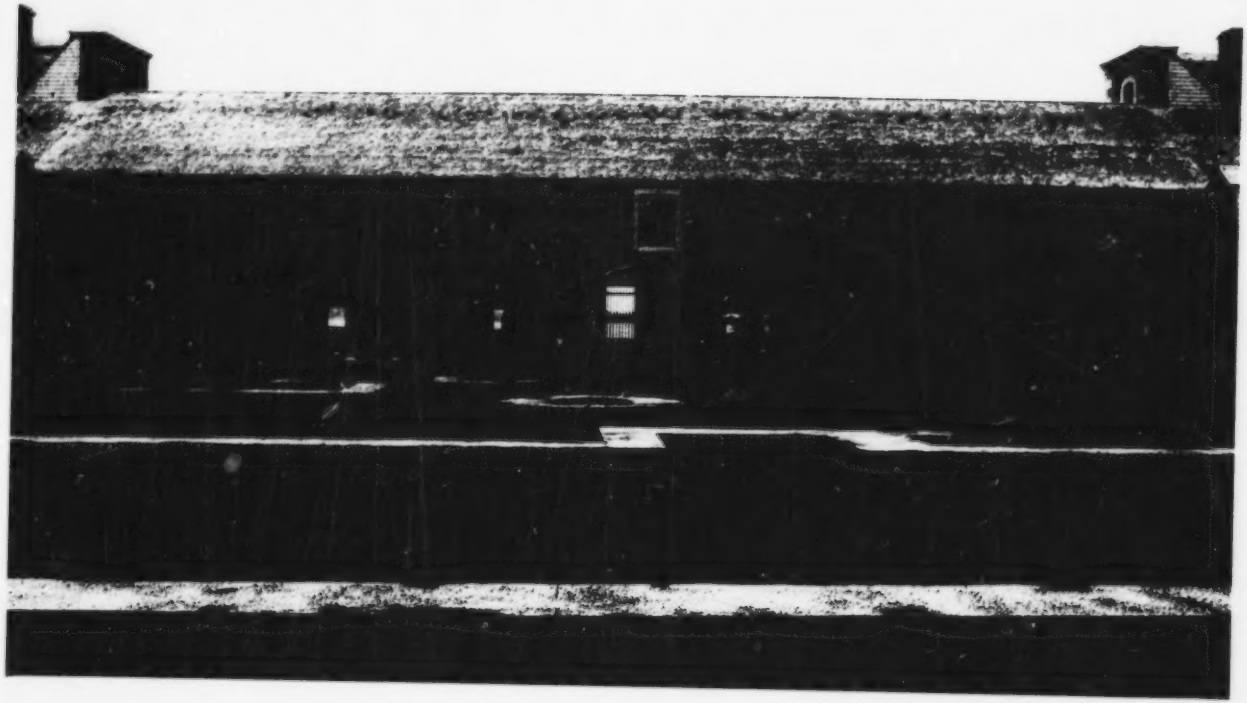
55 South curtain, 29 September 1927.

56 East curtain, 29 September 1927.

57 Restoration work on the north curtain.



58 Hypothetical reconstruction of the south curtain (about 1750). The outlines of features found in the yard are traced on the ground.

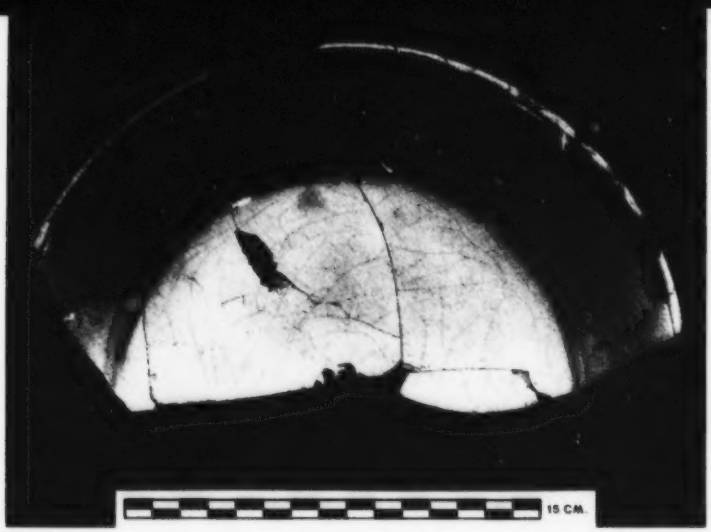


59 Hypothetical reconstruction of the north curtain (about 1750).

60 Felling axe. The head is made of iron and steel; the handle is wooden with one end wrapped in cloth.

61 Large coarse earthenware bowl of French origin.

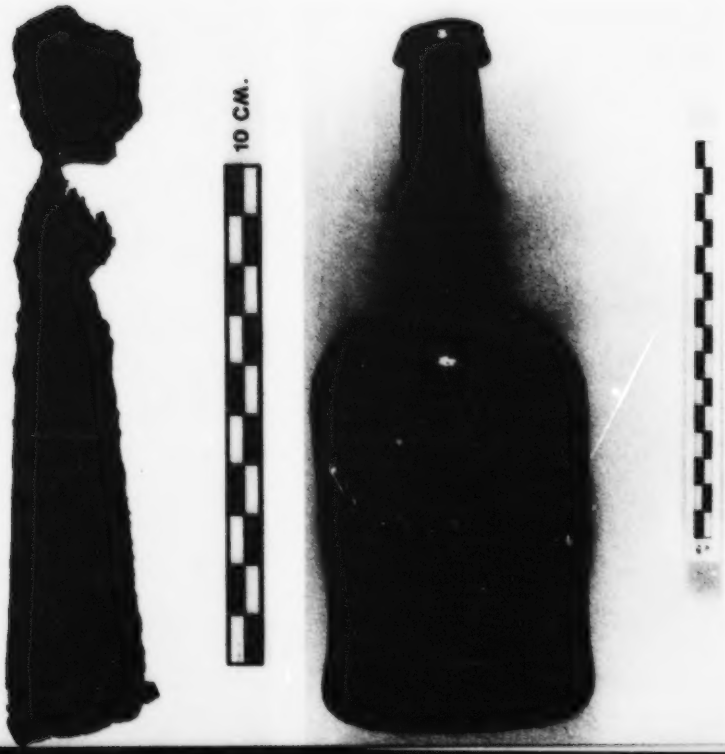
62 Coarse earthenware chocolate pot probably of French origin.



63 Tin-glazed plate decorated in the Rouen style.

64 Bone handle and part of the steel blade of a table knife.

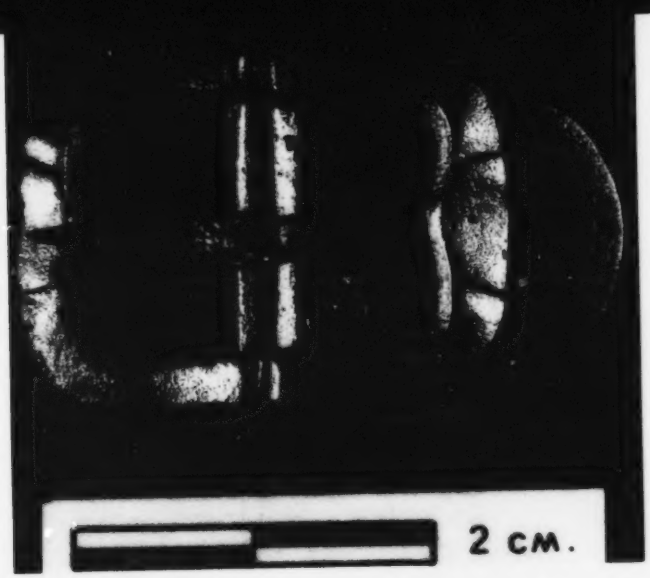
65 Green glass bottle for alcoholic beverages, of British origin.



66 Tumbler of common clear glass.

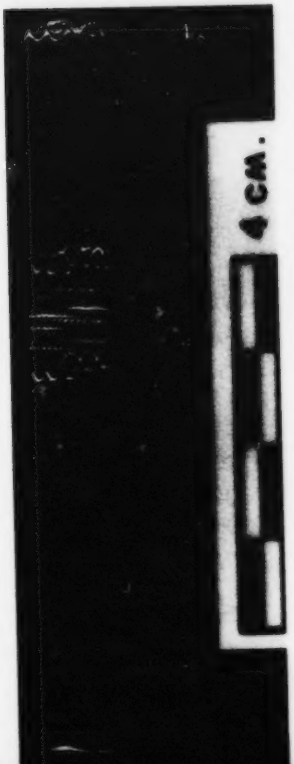
67 Phial of green-tinted glass.

68 Storage bottle of French blue-green glass.

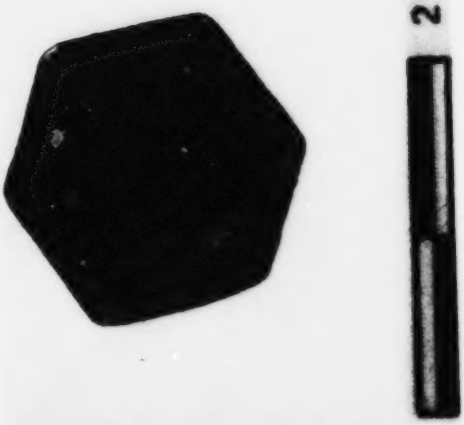


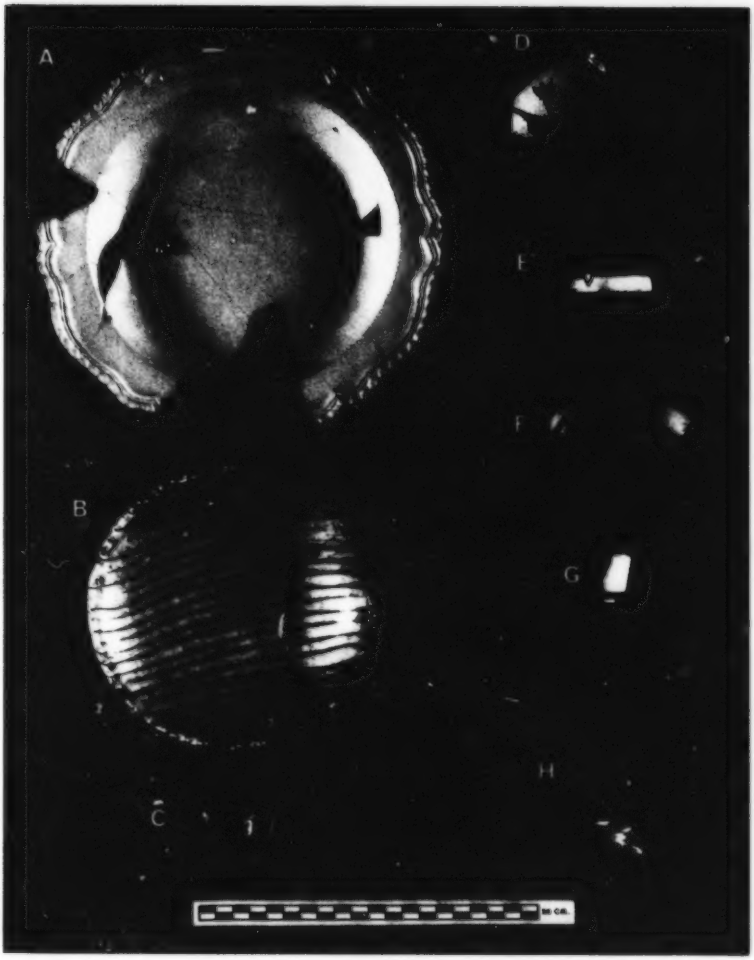
69 Brass buckle, probably worn at the knee.

70 Detail of the decoration on a pipestem of French or Dutch origin.



71 Bone gambling die.





72 Objects of British origin found in the west latrines:
a) refined white stoneware plate;
b) coarse earthenware plate of the Staffordshire slipware type;
c) foot of a lead-glass drinking glass;
d) tin-glazed bowl;
e) small tin-glazed bowl;
f) refined white stoneware saucer with scratch-blue decoration;
g) small refined white stoneware cup;
h) lead-glass toasting or firing glass.

CONCLUSION

The site of Fort Chambly has proven to be of outstanding archaeological value as a source of information not only about the stone fortification, which is now restored, but also about its rudimentary wooden predecessors.

The palisade ditches, building foundations, cellars, artifacts and zooarchaeological remains all provide clues which, when combined with information from historic documents and stratigraphical analysis, give us a better understanding of the first structures, as well as some aspects of garrison life. The overlapping layouts of successive palisade ditches not only indicate the exact position of the two wooden forts, but are also a reminder of how fragile these much-repaired structures were. The cellars, fireplaces and foundations of the buildings provide information about the organization of interior space and the occupants' simple surroundings. The artifacts and animal bones tell us much about the soldiers' living conditions, which were precarious at times, as well as about their diet with its large proportion of wild animal meat.

The stone fort was designed to withstand light artillery fire but, in the long run, it has been most successful in standing up to the ravages of time. Its massive masonry and material culture remains have endured to this day. Archaeological discoveries have shed light not only on Beaucours' original work built in 1710 (its architecture, function and occupants), but also on the fort's changing role throughout the 18th and 19th centuries. All of its parts have contributed data which, when analyzed, will provide us with a better understanding of the site.

Many vestiges of the site's military and civilian occupation beyond the fort's walls have not yet been investigated. The "French village," with its houses, barns and mill, as well as the British military camp and the cemetery, may someday be the object of research that will further enrich our knowledge of Chambly's history.

APPENDIX A

Animal species present and the number of bone elements identified for each of the site's major periods of occupation

SPECIES	BUILDING PERIOD	WOOD FORT I	FIRE STRATUM	WOOD FORT II	STONE 1709-60	STONE CA. 1760	TOTAL
Wild Mammals							
Snowshow hare	0	3	0	1	1	0	5
Hare/rabbit	0	0	0	1	0	0	1
Red squirrel	0	0	0	0	11	0	11
Beaver	13	103	68	31	12	0	227
Muskrat	1	8	8	5	17	1	40
Rat	0	0	1	6	6	0	13
Porcupine	1	7	5	4	0	0	17
Black bear	4	22	8	6	10	0	50
Raccoon	0	1	2	0	0	0	3
Marten	0	2	4	2	3	3	14
River otter	0	5	2	0	0	0	7
White-tailed deer	0	3	11	0	3	1	18
Deer family	0	0	1	0	0	1	2
Moose	14	74	134	50	28	4	304
Moose/cow*	0	1	2	1	0	5	9
Wapiti	3	25	61	8	0	0	97
Moose/wapiti*	0	4	13	2	2	0	21
Total no. of elements	36	258	320	117	93	15	8393

SPECIES	BUILDING PERIOD	WOOD FORT I	FIRE STRATUM	WOOD FORT II	STONE 1709-60	STONE CA. 1760	TOTAL
Domestic Mammals							
Pig	19	160	323	169	83	156	910
Cow	13	59	40	100	60	182	454
Sheep	3	8	4	8	9	80	112
Sheep/Goat*	0	1	2	16	2	28	49
Cat	0	1	0	0	1	8	10
Dog	0	1	1	1	0	2	5
Total no. of elements	35	230	370	294	155	456	1540
Wild Bird							
Pied-billed grebe	0	0	0	0	1	0	1
Great blue heron	0	0	1	0	0	0	1
Goose	3	34	32	13	5	0	87
Brant goose	0	1	0	0	0	0	1
Snowgoose	0	0	1	1	0	0	2
Mallard	0	1	0	2	0	0	3
Duck family	0	1	0	0	0	0	1
Mallard/black duck	0	4	4	14	5	7	34
Green-winged teal	0	0	2	1	0	0	3
Shoveller	0	0	0	0	1	0	1
Wood duck	1	3	0	0	0	0	4
Canvasback	0	0	1	0	0	0	1
Greater scaup	0	1	1	0	0	0	2
Redhead	0	0	0	1	0	0	1
Common goldeneye	0	0	0	1	0	0	1
Bufflehead	0	0	2	2	0	0	4
Oldsquaw	0	1	0	0	0	0	1
White-winged scoter	0	1	2	5	0	0	8
Surf scoter	0	1	0	0	0	2	3

SPECIES	BUILDING PERIOD	WOOD FORT I	FIRE STRATUM	WOOD FORT II	STONE 1709-60	STONE CA. 1760	TOTAL
Hooded merganser	0	1	0	0	1	0	2
Common merganser	0	1	0	1	1	0	3
Red-breasted merganser	0	1	0	1	0	0	2
Red-tailed hawk	0	0	1	0	4	0	5
Rough-legged hawk	0	0	0	0	1	0	1
Broad-winged hawk	0	0	1	1	0	0	2
Bald eagle	0	4	0	3	3	0	10
Osprey	0	1	0	0	0	0	1
Ruffed grouse	0	5	1	9	2	0	17
Spruce grouse	0	1	0	1	0	0	2
Common snipe	0	0	1	0	0	0	1
Greater yellowlegs	0	3	0	2	0	2	7
Short-billed dowitcher	0	6	0	1	0	0	7
Ring-billed gull	1	0	1	3	0	0	5
Passenger pigeon	1	14	8	31	4	3	61
Snowy owl	0	0	0	0	9	0	9
Barred owl	0	0	1	0	0	0	1
Flicker (yellow-shafted)	0	0	0	1	0	0	1
Raven	1	2	2	1	10	0	16
American crow	0	0	1	0	0	1	2
Eastern Meadowlark	0	1	0	0	0	0	1
Songbird	0	0	0	3	0	0	3
Total no. of elements	7	88	63	98	47	15	318
Domestic Birds							
Chicken	4	10	4	18	28	65	129
Chicken/pheasant*	1	0	0	0	0	0	1
Turkey	0	1	0	9	1	100	111

SPECIES	BUILDING PERIOD	WOOD FORT I	FIRE STRATUM	WOOD FORT II	STONE 1709-60	STONE CA. 1760	TOTAL
Goose	0	0	1	0	0	0	1
Total no. of elements	5	11	5	27	29	165	242
Fish							
Sturgeon	3	28	11	13	33	5	93
Longnose gar	0	14	2	1	6	0	23
Northern pike/ muskellunge	0	4	0	2	0	0	6
Northern pike	1	0	2	2	0	5	10
Fallfish	0	0	0	0	0	5	5
Redhorse	5	36	9	8	13	22	93
Silver redhorse	2	1	2	1	0	1	7
River redhorse	2	10	4	0	10	23	49
River redhorse family	0	0	0	0	2	8	10
Shorthead redhorse	0	0	0	0	1	1	2
Greater redhorse	1	2	1	1	1	14	20
Greater/copper redhorse	0	0	2	1	1	0	4
River/copper redhorse	0	0	1	4	0	0	5
Catosmomidae (*Sucker*)	0	4	5	3	0	0	12
Channal catfish	17	180	231	98	102	117	745
Bullhead	0	0	0	3	0	0	3
Smallmouth bass	1	1	0	1	1	7	11
Bass	1	0	1	0	1	0	3
Atlantic cod	0	2	1	0	0	0	3
Yellow perch	0	1	1	1	4	2	9
Walleye	3	9	0	3	7	7	29
Sauger	0	1	1	0	6	1	9
Freshwater drum	0	2	2	2	1	9	16
Total no. of elements	36	295	276	144	189	227	1167

SPECIES	BUILDING PERIOD	WOOD FORT I	FIRE STRATUM	WOOD FORT II	STONE 1709-60	STONE CA. 1760	TOTAL
Reptiles							
Snapping turtle	1	3	2	3	6	0	15
Wood turtle	0	1	1	1	1	0	4
Map turtle	0	1	0	2	0	0	3
Painted turtle	0	1	1	0	0	1	3
Pond turtle family	0	2	0	0	0	0	2
Eastern spiny softshell turtle	2	4	3	0	5	0	14
Total no. of elements	3	12	7	6	12	1	41
Amphibians							
American toad	0	1	0	1	0	0	2
Bullfrog	0	0	0	0	1	0	1
Frog	0	1	0	0	0	0	1
Total no. of elements	0	2	0	1	1	0	4
Grand total of elements	122	896	1041	687	526	879	4151

*Not counted as species
(Adapted from Walker and Cumbaa 1982)

APPENDIX B

Percentage of identified bone elements by animal class for each of the site's major periods of occupation

Animal class	BUILDING PERIOD (122)	WOOD FORT I (896)	FIRE STRATUM (1041)	WOOD FORT II (687)	STONE 1709-60 (526)	STONE CA. 1760 (879)
Wild mammals	29.5	28.8	30.7	17	17.7	1.7
Domestic mammals	28.7	25.7	35.5	42.8	29.5	51.9
Wild birds	5.7	9.8	6.1	14.3	8.9	1.7
Domestic birds	4.1	1.2	26.5	3.9	5.5	18.8
Fish	29.5	32.9	0.7	21	35.9	25.8
Reptiles	2.5	1.3	0	0.9	2.3	0.1
Amphibians	0	0.2	0	0.1	0.2	0

APPENDIX C

Identification key to features on the plans

FEATURE NO.	IDENTIFICATION
1	Network of trenches
2	Traces of the first wooden fort's palisade ditches
3a to 3f	Storage pits
4	Unidentified building
5	Unidentified building
6	Outbuilding
7	Depression
8	Pile of stones
9a to 9c	Fireplace bases
10a	Burnt soil
10b	Hollow
11a and 11b	Sections of stone walls
12	Traces of the second wooden fort's palisade ditches
13	King's Store
14	Wall section
15	Wall section
16	Wall section
17a	West latrines (north curtain)
17b	East latrines (north curtain)
18a	Fireplace base (northwest bastion)
18b	Fireplace base (northeast bastion)
19a	Wall closing off the northwest bastion
19b	Wall closing off the northest bastion
19c	Prolongation of the northeast bastion's left flank

FEATURE NO.	IDENTIFICATION
20a to 20f	Foundations at cellar level, central area inside the south curtain
21	Foundations at cellar level, east area (south curtain)
22	Bake oven (southeast bastion)
23	Partition wall (southeast bastion)
24	Base of the yard wall, according to the 1738 plan
25 to 25c	Vault jambs (north curtain)
26	Walls of the central area (north curtain)
27	Drain
28	Well in the middle of the yard
29	Wall connecting the jambs, according to the 1823 plan
30a to 30c	Buttresses built against the 1823 wall
31	Fireplace base (northeast bastion)
32	*Potager* (southeast bastion)
33a to 33b	Light wells built against the yard wall (east side)
34	Sidewalk flagstones about the yard's perimeter
35	Blacksmith's shop outside the southeast bastion (Fig. 12)
36	Wooden fence between the blacksmith's shop (No. 35) and the salient angle of the southeast bastion
37a to 37b	Masonry of the ditch in front of the gate (west curtain)
38	Indian grave
39	Double fireplace base, east wall of the central area of the building standing against the north curtain
40	Drain (southwest bastion)
41	Partition wall (southwest bastion)
42	Bake oven originally, forge hearth later (southwest bastion)
43	Well (southwest bastion)
44a	West partition wall adjoined to the south curtain
44b	East partition wall adjoined to the south curtain
45a	West fireplace base (south curtain)
45b	East fireplace base (south curtain)

FEATURE NO.	IDENTIFICATION
46	Walled-up cellar entry, west side of the yard wall parallel to the south curtain
47a	South fireplace base (west curtain)
47b and 47c	Two sections of a partition wall (south) extending across the building along the west curtain
48	Air vent in the yard wall along the west curtain
49	Doorway opening into the central area of the building standing against the west curtain
50	Fireplace base or *potager* base inside the east curtain
51	Retaining wall built on the east curtain, south side of the fireplace base or *potager* base (Features No. 50 and 53)
52	South partition wall in the central area of the building standing against the east curtain
53	Fireplace base or *potager* base
54	Fireplace base and north partition wall in the central area of the building standing against the east curtain
55	North fireplace base (east curtain)
56a	Partition wall (northwest bastion)
56b	Partition wall (northeast bastion)
57	Partition wall of the power magazine (northwest bastion)
58	Original facing of the foundation (north curtain)
59	Masonry drain at the foot of the north curtain

GLOSSARY

Bastion:

Defensive work, consisting of two flanks and two faces, projecting from the outer wall of a fortification, principally to defend the adjacent perimeter.

Battery:

Raised position for mounting heavy guns; may be applied generally to defensive positions as an alternative term to flanks of bastions or as a descriptive term for the principal function of detached forts, e.g. Royal Battery. Often used specifically to refer to besiegers' gun emplacements.

Buttress:

An exterior mass of masonry set at an angle to or bonded into a wall which it strengthens or supports (Harris, *Illustrated Dictionary of Historic Architecture*).

Curtain:

Length of straight wall between two bastions.

Embrasure:

Opening in parapet, usually flared, through which cannon are fired.

Lintel:

A horizontal structural member (often of stone) over an opening which carries the weight of the wall above it.

Machicolation:

An overhanging defensive structure at the top of a fortification, with floor openings through which boiling oil, missiles, etc., could be dropped on attackers (Harris, *Illustrated Dictionary of Historic Architecture*).

Pallisade:

A series of wooden stakes, about two metres high, pointed on top and driven into the earth, set into the defences of a fortifications in front of curtains and ramparts.

Pier:

A member usually in the form of a thickened section, which forms an integral part of a wall; usually placed at intervals along the wall to provide lateral support or to take concentrated vertical loads (Harris, *Illustrated Dictionary of Historic Architecture*).

Postern:

Any small door or gate, especially one far from the main gate in a fortification. A vaulted passageway in a rampart providing access to the out works; usually located in the middle of a curtain.

Redan:

A triangluar structural projection from a fortification forming a salient angle.

Tambour:

A round or drum-shaped protective construction in front of a door; may be attached, semi-detached or independent of the building and made of wood, stone or just earth.

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ILLUSTRATION SOURCES

FIG.	ARTIFACT	NEGATIVE	DRAWING	PHOTO-GRAPHER/ ILLUSTRA-TOR
National Archives of Canada, Ottawa				
2		C-16143		
3		C-83557		
4		C-15990		
5		C-15886		
6		C-37699		
7		C-15887		
8		C-15887		
9		C-15888		
10		C-20899		
11		C-15891		
12		C-52199		
13		C-17474		
14		C-17487		
55		P87779		
56		P87781		
Canadian Parks Service, Architecture and Engineering, Ottawa				
54		118/100, 5516		
Canadian Parks Service, Québec				
1			82-G-D-2	R. Gagnon
15				J. Audet
16	16G77R39X-1			B. Fry
17	16G8A10-1Q 16G8K15-1Q 16G8K21-1Q 16G5G5-3Q	16G-118/AMC/PR-6/P-3		J. Jolin

FIG.	ARTIFACT	NEGATIVE	DRAWING	PHOTO-GRAPHER/ ILLUSTRA-TOR
	16G8K19-1Q 16G5D5-2Q 16G4D7-1Q 16G8A37-1Q 16G8K2-1Q			
18			82-16G-D-2	R. Gagnon
19	16G78R31X-8			J. Audet
20	16G7R33X-4			J. Audet
21	16G76R15X-6			G. Piédalue
22	16G78R58X-11			G.Piédalue
23	16G78R10X-4			G. Piédalue
24			82-16G-D-3	R. Gagnon
25	16G77R33X-2			J. Audet
26			82-16G-D-4	R. Gagnon
27			82-16G9-D-1	R. Gagnon
28	16G81R11X-2			C. Cloutier
29	16G80R7X-11			C. Cloutier
30			82-16G4-D-1	R. Gagnon
31	16G76R21X-11			G. Piédalue
32			82-16G9-D-2	R. Gagnon
33			82-G-DH-2-3-4	R. Gagnon
34			82-16G-4D-2	R. Gagnon
35	16G80R14X-8			C. Cloutier
36			82-16G-D-12	R. Gagnon
37	16G81R7X-6			C. Cloutier
38	16G77R31X-10			J. Audet
39			82-16G-D11	R. Gagnon
40	16G77R4X-7			C. Cloutier
41			82-16G8-D-1-2-3	R. Gagnon
42			82-16G8-D-4	R. Gagnon
43	16G81R21X-8			C. Cloutier
44	16G77R26X-7			C. Cloutier

FIG.	ARTIFACT	NEGATIVE	DRAWING	PHOTOGRAPHER/ ILLUSTRATOR
45	16G77R25X-8			J. Audet
46	16G78R25X-9			G. Piédalue
47	16G78R17X-7			J. Audet
48	16G78R15X-3			J. Audet
49			82-16G-D-7	R. Gagnon
50			82-16G-D-8	R. Gagnon
51			82-16G-D-9	R. Gagnon
52			82-16G-D-10	R. Gagnon
53			82-16G-D-5	R. Gagnon
57	16G81R28X-21			C. Cloutier
58		118/00/PR-6/30-3		R. Piette
59		118/00/PR-6-32-5		R. Piette
60	16G8A32-2Q	16G-118/ACM/PR-6/P-11		J. Jolin
61	16G8P6-5Q	16G-118/ACM/PR-6/P-29		J. Jolin
62	16G8A32-14Q	16G-118/ACM/PR-6/P-12		J. Jolin
63	16G9Y4-1Q	16G-118/ACM/PR-6/P-18		J. Jolin
64	16G4T7-1Q	16G-118/ACM/PR-6/P-59		J. Jolin
65	16G8A32-34Q	16G-118/ACM/PR-6/87-4		N. Royer
66	16G8A36-11Q	16G-118/ACM/PR-6/71-11		P. Vézina
67	16G8A32-24Q	16G-118/ACM/PR-6/P-40		J. Jolin
68	16G8A32-33Q	16G-118/ACM/PR-6/P-40		J. Jolin
69	16G8K25-4Q	16G-118/ACM/PR-6/P-33		J. Jolin
70	16G4V9-1Q	16G-118/ACM/PR-6/P-21		J. Jolin
71	16G4F6-2Q	16G-118/ACM/PR-6/P-47		J. Jolin
72	16G8A32-30Q	16G-118/ACM/PR-6/P-15		J. Jolin
	-16Q			
	-8Q			
	-37Q			
	-38Q			
	-40Q			
	-41Q			
	-23Q			

For several years Fort Chambly National Historic Park has been the object of considerable archaeological research. This study presents the principal results of archaeological research and traces the physical development of the site in some detail. As well, the results of artifact research are combined with information from other sources to clarify the question of living conditions at the fort, especially with respect to the occupants' eating habits.

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